Development principles for interorganisational B2B information chains **ŤU**Delft

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# Development principles for inter-organisational B2B information chains

by

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# **Executive summary**

No organisation operates completely on their own, they all require goods, services or information from other organisations with whom they operate in a network (Lambert & Cooper, 2000). The financial sector is no different. Here, business reports, in the form of financial statements or valuation reports, have to be shared. Although more and more organisations are digitising their internal systems, this does not mean this will result in compatible systems between the different organisations within the chain (Bharosa, van Wijk, de Winne, & Janssen, 2015). The exchange of information within the financial sector can be characterised as an information chain between different organisations. This is similar to a network as the organisations are dependent on one another. However, in an (information) chain, these inter-dependencies are a consequence of the order in which processes occur. In general for the financial sector, an information chain has one or more requesting parties that the reporting party has to send information to, which can be done through an intermediary.

Within the Netherlands there has been an effort to incorporate standard business reporting (SBR) in financial information chains both in the Business-to-Government (B2G) and Business-to-Business (B2B) chains. SBR is a set of standards that allow for the exchange of qualified information (Bharosa, Hietbrink, Mosterd, & Van Oosterhout, 2018). While the development and implementation of the B2G information chains has been analysed in detail, this is not the case for their B2B counterparts (Bharosa et al., 2018). Not only have B2B information chains to the author's knowledge not been investigated in-depth, theory with regard to inter-organisational collaboration on data is scattered over multiple different research areas. This study combined a number of different literature fields on governance to get a more complete overview of possible governance structures that could be present. Here, literature about data, network, and platform governance was combined. Similarly, a combined overview for division of roles and tasks was created looking at possible roles in intra- and inter-organisational collaboration as well as in data management.

The aim of this study is to address the knowledge gap with regard to B2B information chains, and to develop principles for the development of B2B information chains. Resulting in the following research question: *Which principles during the development of a B2B information chain improve the implementation by stakeholders?*. With a stakeholder defined according to Freeman: "a stakeholder in an organization is (by its definition) any group or individual who can affect or is affected by the achievement of the organization's objective" (1984), p.25.

Three case studies were used to analyse B2B information chains within the Dutch financial sector. The development of the following information chains were studied: SBR Jaarrekening, SBR Taxatierapport and SBR Huurinformatie. All three cases have the banks as one of the main stakeholders. Banks, in this study, refers to the three banks that established SBR Nexus. SBR Jaarrekening was the initial information chain, with its development starting in 2010. However, most documentation of the early years of development has been lost. The change of vision in 2018, where more stakeholders were involved in the development of SBR Jaarrekening, was chosen as the starting point instead. For SBR Taxatierapport and SBR Huurinformatie, the start of the development as a SBR solution was used, which are 2016 and 2019 respectively. The cases were analysed using a combination of document analysis and semi-structured interviews. This study holds an interpretive stance as it is dependent on the interpretation the various people involved assigned the different aspects of the development. First, the cases were each analysed individually using hermeneutics (Klein & Myers, 1999). Then the cases were compared for similarities and differences that would give an insight into the development of the information chains.

The common stakeholders in all cases are the banks and SBR Nexus. All three cases have the stakeholder group software suppliers. Accountants and businesses are the remaining stakeholders in the SBR Jaarrekening case, where only businesses that have or wish to have a loan with one of the banks are considered relevant. Valuers and property owners are the other stakeholders in the SBR Taxatierapport and SBR Huurinformatie cases, respectively. As a result, the three cases each have different levels of stakeholder complexity. It could be seen that the main stakeholders groups did not change during development of the chains for all the cases.

In conclusion, this study found that, similar to B2G information chains, the B2B information chains' limiting factors are organisational and not technical. While the aim was to find factors that improve the implementation of the information chain, four factors that hindered the implementation were also found. These four factors are 1) changes in individual representatives, 2) ambiguously defined stakeholder roles, 3) lack of goal consensus, and 4) lack of clearly defined governance structure. In addition, two factors were found to improve the implementation which are 1) the early involvement of a software supplier, and 2) mandating the use of the information chain (Bharosa et al., 2018). However, the second one is complicated in these information chains, because the driving stakeholders are in fact three separate banks that outside of SBR Nexus are each other's direct competitors. As a result, banks are reluctant to use their mandate fearing they could loose customers to the other banks.

The six factors were used to develop a set of 25 principles for the development of B2B information chains. These principles are based on literature and the three cases analysed in this study. The principles can be broadly divided into three categories: those related to definitions and rules, communication, and actions to be taken. Rules and definition should be used to create a common basis from which the information chain is developed e.g. define what is managed for whom, and have a common set of definitions. Secondly, the principles with regard to communication address the fact that having rules and norms will not help if these are not known by all the main stakeholders in the network (Gil-Garcia, Guler, Pardo, & Burke, 2019; Winkler, 2006). Lastly, there is a group of principles that suggest actions to be taken to further the development of the information chain e.g. involve the main affected stakeholders in discussions and decisions. It should be noted that these principles are recommendations developed based on the observations of how the development went until now. Further research is required to test the efficacy of these principles.

There are at least four limitations to this study; 1) all cases considered are within the Dutch financial system and have the banks as a stakeholder with the mandate to, in theory, force the rest of the chain to comply; 2) the factors described above are unlikely to be independent of each other; 3) all those interviewed were at the very least enthusiastic if not actively involved with SBR thus giving a limited perspective; and 4) the research was carried out from a central perspective at SBR Nexus and did not look at the detailed inner-workings of the other stakeholders, such as the banks. These limitations can all be seen as the starting points for further research. In addition, the effect of banks using their mandates on customer switching should be further investigated as this is one of the main steering mechanisms.

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# Abbreviations

B2B	Business-to-Business		
B2G	Business-to-Government		
BT	banking taxonomy (bancaire taxonomie)		
DNB	Dutch central bank		
ECB	European central bank		
FRC	Financial Reporting Cooperative (Financiële Rapportages Coöperatief)		
FT	financial taxonomy (financiële taxonomie)		
ISO	International Organisation for Standards		
NAO	network administrative organisation		
NBA	Koninklijke Nederlandse Beroepsorganisatie van Accountants		
NOAB	Nederlandse Orde van Administratie- en Belastingdeskundigen		
NRVT	Nederlands Register Vastgoed Taxateurs		
NT	Dutch taxonomy (Nederlandse taxonomie)		
NVM	Nederlandse Coöperatieve Vereniging van Makelaars en Taxateurs		
MDMB	mijn data mijn business		
МоТ	Management of Technology		
PMS	property management system		
QIE	Qualified Information Exchange		
SBR	standard business reporting		
VT	real estate taxonomy (vastgoed taxonomie)		
XBRL	eXtensible Business Reporting Language		
XML	Extensible Markup Language		

## Chapter 1

# Introduction

### 1.1 Background

Organisations are not situated in a vacuum, but they are part of networks where goods, services and information are being exchanged (Lambert & Cooper, 2000). Similarly, financial data, such as business reports and valuation reports, are exchanged in a network of different firms, banks, and public organisations for tax purposes or to give stakeholders an account of the performance of the firms (Bharosa et al., 2015). In recent decades the information processing within organisations has been computerised (van Oost, Alberts, van der Ende, & Lintsen, 1998) and partially or fully automated with the development of information and communication technology systems (Looijen, 2000). This has created an opportunity to integrate the information systems within an inter-organisational network (Kauremaa, Kärkkäinen, & Ala-Risku, 2009). For example, within the financial sector this could mean that financial reports are send from the accountant's system directly to the bank's system without a person in between that has to take the information out of a system only for it to be manually entered into a different organisation's system.

Integrating information systems to form system-to-system interactions (see Figure 1.1) has several benefits 1) reducing the number of errors as a result of (re)-entering information into a system; 2) saves time by removing the intermediate steps of a person interacting with their organisation's respective system; 3) human actions in the information exchange process have become relatively expensive (Bharosa et al., 2015). As mentioned above, financial data and valuation reports need to be shared between different organisations. However, this exchange (i.e. business reporting) requires the exchange of qualified information. This category of communication will be subjected to judgement by receiving parties, such as the banks, with legal or financial consequences (van Wijk, Bal, & de Winne, 2016). The data sent must be of high quality so it can be used in risk analysis. Additionally, the sender of the information must be certain that the information goes to the correct receiver in this case the correct bank. Vice versa the banks must be able to trust that the information is coming from a sender that is authorised (i.e. the business owner) or an accountant on their behalf. Therefore, integrating inter-organisational systems for business reporting must be secure, able to reliably identify the parties requesting and submitting information, and inform submitting parties about the status of their documents. The integration of information systems in the financial sector has the additional benefit of higher quality data for the receiving party if it is correctly implemented. Consequently, the risk models, which banks use, will be more accurate due to the improved data quality. Thus, allowing banks to lower the amount of capital that they have to keep in reserve for inaccuracies in determining the risks.

However, even though integrating systems has numerous benefits there are also many barriers to the integration of different companies and organisations in a network that require each others' data. Scholl and Klischewski (2007) gave an overview of possible reasons for inoperability, namely technical, syntactic, semantic, organisational, and legal. Syntactic operability means that companies can agree upon a common language standard for the data such that their systems can directly use the received data, while semantic operability means that the systems interpreted the data the same way. Organisational operability is that the companies have to set up the systems and decide on the division of tasks and roles. Lastly, legal operability are the agreements and legal frameworks that govern the data exchange. Looijen (2000) stated that information is an intangible good



Fig. 1.1. At the top the human-to-human integration where the systems of the organisations are not integrated. At the bottom the system-to-system integration. Source: (Bharosa et al., 2015).

and open to multiple interpretations, thus semantic inoperability can be a problem for developing information chains. Furthermore, Bharosa et al. (2015) observed that organisational operability proved to be the most difficult to overcome in the development of information chains.

Organisational and semantic operability are further complicated by the changeable nature of information. Firstly, it can appear in numerous different forms and sizes for which agreements will have to be made. Secondly, the requirements set by the requesting party can change over time, which means that the information chain needs to be adaptable to account for future changes. In the case of Business-to-Government (B2G) information chains, the development can be driven by legislation. This is not the case for Business-to-Business (B2B) information chains where participating in the information chain needs to have some added value for the participating businesses (Bharosa et al., 2015; Buiten et al., 2018).

### 1.2 What are information chains?

A (information) chain between organisations differs from a network on the level of dependency between them. A network is generally a group of organisations or actors that have some inter-dependencies (de Bruijn & ten Heuvelhof, 2010), while a chain is characterised by the fact that dependencies arise from the sequence in which processes occur. As a consequence, chains tend to be more formalised due to need for other organisations within the chain to complete their part before the overall process can continue. As mentioned above, one version of a chain between organisations can be an information chain, where the dependency is based on the information that the different organisations need in order to complete processes.

Information chains in the financial sector often contain a requesting party, such as a bank, and reporting parties. These reporting parties can be the businesses themselves or intermediaries on their behalf. In these chains it is the requesting party, such as a bank, that wishes to receive the information yet they are dependent on the business to supply that information. Who themselves are often dependent on their intermediary to file the information for them. Thus creating a chain of dependency to file the information. Additionally, the information required often needs to be qualified information, thus creating a sequence of steps that have to be completed such as but not limited to authentication, authorisation and validation (see Figure 1.2). Depending on the type of integration there could be an organisation in the middle that is the connection between multiple reporting and requesting parties which can also serve as a link between different information chains. Ideally, when the integration is done correctly this should make the overall process of reporting more efficient (Bharosa et al., 2015).



**Fig. 1.2.** Information chain between a reporting party and a requesting party with an organisation in the middle that is responsible for ensuring qualified data. Source: (Bharosa et al., 2015)

### **1.3** Problem statement

The development of B2G information chains in the Netherlands has been analysed and reported upon in detail (Bharosa et al., 2015; Hulstijn et al., 2011; Buiten et al., 2018), the same cannot be said for B2B information chains (Bharosa et al., 2018). As described above, when the government is one of the stakeholders the use of an information chain can be made mandatory by legislation. Even when this does not happen, this option will be considered by the other stakeholders for the unilateral decision that can be made by the government stakeholder (de Bruijn, 2005). Legislation from actors within a B2B information chain is not possible. However, it is likely that part of the methods developed for public-private inter-organisational information sharing development will be applicable in a B2B context, this has not been explored. Certainly for the financial sector, there is to the author's knowledge no literature available on the development of information chains. Thus, there is a knowledge gap with regard to the development of B2B information chains.

The aim of this thesis will be to address this knowledge gap and to develop principles for the development of B2B information chains. This will be done by analysing the development of three information chains in the Dutch financial sector, namely SBR Jaarrekening (financial statement), SBR Taxatierapport (valuation report), and SBR Huurinformatie (rental information). The choice for these specific cases will be explained in Chapter 2. All three information chains are set up by the three largest banks in the Netherlands to facilitate standard business reporting (SBR) (van der Pol & Huis in 't Veld, 2022). In these information chains, business reports are the type of information that is being requested and send within the network of stakeholders. In the SBR Jaarrekening chain the banks are connected to businesses and indirectly to accountants, while for SBR Taxatier-apport the banks are connected to valuers. Lastly, in the SBR Huurinformatie case the banks are connected with commercial real estate owners. These cases will be used to determine the influence of stakeholder involvement on the development of B2B chains, with a stakeholder defined as:

"a stakeholder in an organization is (by its definition) any group or individual who can affect or is affected by the achievement of the organization's objective" (Freeman, 1984) p.25.

Hulstijn et al. (2011) found that one of the challenges for a standardised reporting chain were the multiple stakeholders and their involvement. The roles of the stakeholders involved in the the process will be analysed, with a role being defined as:

"the responsibility for performing specific behaviour, to which an actor can be assigned, or the part an actor plays in a particular action or event." (Wouters, Janssen, & Crompvoets, 2021) p.43.

Aside from the involvement and behaviour of the different stakeholders, a second important aspect is the agreement frameworks that are decided upon. There are many aspects for which agreements have to be made. One of them is the governance structure of the chain e.g. who is responsible for what, and how changes will be decided upon. All of this can be part of the agreement frameworks, in addition to decisions made about the technical infrastructure of the chain. However, the different stakeholders will have different interests when it comes to these agreements (Buiten et al., 2018), which will have to be managed during the development phase to improve the chances of adoption at the end (Bharosa et al., 2015).

## 1.4 Research objective and scope

### 1.4.1 Research question

As discussed, there is a knowledge gap with regard to the development of information chains in a B2B context, which this thesis will try to address. This leads to the following research question:

Which principles during the development of a B2B information chain improve the implementation by stakeholders?

Here the definition of a principle is taken from Bharosa and Janssen (2015) as "normative, reusable and directive guidelines, formulated towards taking action" p.472. The scope of this research will be limited to information chains that concern the exchange of structured data in an inter-organisational context, specifically SBR information chains. With structured data referring to data that is in predefined format which all stakeholders can interpreter in the same manner. For the development of similar public-private information chains, the organisational operability and the governance proved to be the most challenging and not the technology itself (Hulstijn et al., 2011; Bharosa et al., 2015). As such, this thesis will focus on the organisational and governance aspects of setting up the information chains, as it is likely that B2B information chain development faces similar challenges there. This gives the following sub-research questions:

- 1. How do the interests and roles of stakeholders change during the process?
- 2. What types of agreement frameworks are developed during the process?
- 3. What influence do the agreement frameworks have on the stakeholder's interests and roles during the process?

Sub-research question 1 aims to create an overview of the stakeholders and their interest(s) with the intend to develop an insight into why stakeholders might or might not wish to implement the information chain. Furthermore, organisational operability is likely one of the challenging aspects of B2B information chains, which entails the setting of roles between stakeholders (Scholl & Klischewski, 2007). Therefore, the aspect of the division of roles and the stakeholder's expectation of roles is researched with regard to its influence on the implementation of SBR information chains. The second sub-research question aims to obtain an overview of the agreement frameworks that are present and what part of the inter-organisational structure, such as governance, is (in)formally included. The third sub-research question intends to see if during the development of the information chains agreement frameworks were developed that changed the involvement, interests or roles of the stakeholders.

An important aspect of this thesis is that the development of the information chains will be researched in time, as further discussed below. These sub-questions help with determining how the information chains of interest came to be and how the stakeholders and agreement frameworks developed over time.

### 1.4.2 Research scope

The research questions will be analysed based on three case studies of SBR chains set up in the Dutch financial sector, as mentioned before those will be SBR Jaarrekening, SBR Taxatierapport, and SBR Huurinformatie. The development of SBR Jaarrekening was started in 2010 as a project of the three largest banks in the Netherlands. However, the documentation from the starting period is very limited, because it was a project from the three largest banks and not an entity on its own. Additionally, the quality of interviews will be low when the topic is the interviewee's thoughts on how the the development of SBR Jaarrekening went more than a decade ago. In 2018 the decision was made to change the vision and direction of development for SBR Jaarrekening (SBR Nexus, 2019). Thus, to improve the quality of the data this point will be taken as the starting point for SBR Jaarrekening.

The development of the other chains started later, namely 2016 for SBR Taxatierapport and 2019 for SBR Huurinformatie. The three information chains are developed in sequence which provides the opportunity to not only look at the development of the individual chains, but also the learnings that were taken by the organisations as the development of more recent chains proved easier than the first one (van der Pol & Huis in 't Veld, 2022). Thus, there are two timelines that will have to be taken into account when analysing these case studies. Firstly, there is the life cycle of the individual SBR solutions from initiation to design to implementation. Secondly, there is the development of the organisation around it. Furthermore, not all the chains are equally well accepted. Valuers have been faster in implementing SBR Taxatierapport than accountants/administrators have been in implementing SBR Nexus, 2021).

## Chapter 2

# **Research methods**

The research was done based on a literature review and three case studies. The literature review is a traditional literature review to get better acquainted with the different topics that are relevant for this thesis. The case studies have been analysed with a combination of document analysis and interviews.

### 2.1 Literature review

#### 2.1.1 Search description

The topics of interest for the literature search were actor roles, stakeholders, SBR, and different types of governance with regard to inter-organisational information systems. The search for literature was performed in a sequential manner. First, a keyword based search was performed in Scopus. Secondly, articles cited by articles, that were selected in the keyword search, were considered. Thirdly, articles which cited papers, that are included in this literature review, were considered. Lastly, for literature on SBR specific authors were considered.

#### 2.1.1.1 Keyword search

The keyword search search was split into multiple different parts according to the different topics of interest. The keywords used for actor roles were *actor role(s)* or *stakeholder role(s)* in combination with one or more of the following keywords *information sharing, inter organizational, collaboration,* and *information chain.* One of the main problems with searching for actor roles is that role is very often used in the context of effect X has a role in establishing outcome Y. Therefore, the phrases "*actor role(s)*" and "*stakeholder role(s)*" were used to limit the search results to containing descriptions of roles. Based on the literature that was found additional searches with the phrases "*coordination role(s)*" and "*perspective role(s)*" in combination with the above described keywords were done. The search terms for literature with regard to stakeholders were *stakeholder organizational, collaboration,* and *information chain.* 

With regards to governance the keyword *governance* was combined with a different field of governance after a discussion with prof. Marijn Janssen on which fields of governance would likely be applicable. The keyword *governance* was combined with one of the following keywords *data*, *network*, *platform*, *multi-layered*, and *inter organizational*. The search was further specified by adding one of the following keywords *mechanism* or *model(s)*.

Lastly, there is the topic of SBR where the keywords *standard business reporting* and *SBR* were used. With respect to SBR within the Netherlands quite a number of articles had N. Bharosa listed as one of the authors, therefore publications by this author were searched for articles related to SBR.

In cases where the keyword search resulted in a large number of search results (>150) additional keywords were added from the above mentioned lists. In some cases the the search results tended to have many natural science/engineering related papers included in them, in those cases the subject areas were restricted to *Business, Management and Accounting, Social Sciences, Economics and Econometrics, General Economics, Econometrics and Finance, Finance, and Management Information Systems.* 

### 2.1.2 Selection criteria

The first selection of the papers was made based on the title, abstract and keywords. Papers in the keyword search were chosen because they contained the background theory in regards to the topics described above. Additionally, studies with regard to the implementation of inter-organisational information exchange were included. However, the geographical location was limited to western developed countries. Those paper were skimmed in its entirety, if the paper was still deemed relevant it was read again more thoroughly. A similar method of selection was used for the articles that cited literature used in this literature review.

The selection of papers, that were cited in articles selected through the keyword search, was based on the title, abstract and keywords similar to the keyword search. Additionally, papers were selected when they were cited in multiple articles deemed of interest, such as Mitchell, Agle, and Wood (1997), J. Rowley (2011), and Jones, Hesterly, and Borgatti (1997). Furthermore, cited articles were selected because they were cited as the reference for the main arguments/framework used in an article deemed of interest, such as Coughlan, Lycett, and Macredie (2003), Janssen, Gortmaker, and Wagenaar (2006), Bharosa et al. (2015), and Provan and Kenis (2008).

Lastly, in the search for articles related to data governance a recent literature review by Abraham, Schneider, and Vom Brocke (2019) describing the state of the data governance field was used as an starting point to get better acquinted with the field. Similarly, the book *Handbook on theories of governance* by Ansell and Torfing (2016) was used as a starting point for network governance.

## 2.2 Case study selection

In total three information chains being developed by SBR Nexus were chosen as the case studies. The Dutch financial sector was chosen, because B2G information chains in this sector have been analysed in depth whereas their B2B counterpart has not. This allows for the investigation into B2B information chains, whilst also comparing how they are similar or dissimilar to their B2G counterpart as most of the same stakeholders are involved in the SBR Jaarrekening case. The cases were chosen for their variety in specifics while still dealing with structured data exchange in the Dutch financial sector, see Appendix A for an overview of the differences.

While there are a number of differences with respect to the complexity of the stakeholders and the start of development, all three cases have in common that they are initiated from the banks. Thus, keeping one of the stakeholders constant between the different case studies. Furthermore, the development of the different information chains has been done one after the other, although none can be considered fully completed yet, thus giving an insight into the learnings that were carried over from one development to the other.

Additionally, the multiple case study approach was chosen to establish the external validity of the findings. Replication logic formed the basis for the generalisability of the outcomes (Yin, 2009). The cases were chosen such that factors that can be found in all three cases indicate factors that would be more generalisable for the development of information chains in the financial sector.

The aim of this study was to get an overview of factors that could improve the development and implementation of information chains, therefore this is an interpretive study. It looked at the factors which were described as either improving or hindering the development and implementation by those involved with the development. These descriptions were then used to form an overview of factors and develop guiding principles from. Therefore, the internal validity within the cases as stated by Yin (2009) is not applicable. Instead external validity, as discussed above, was used to determine the generalisability of concepts that lead to improved development or implementation and to build a framework guiding principles to consider.

Different sources of evidence were used to analyse these case studies to improve the construct validity (Yin, 2009). A combination of documents and interviews were used. However, as already mentioned in Chapter 1 documentation on the initial development of SBR Jaarrekening has mostly been lost. Furthermore, it is unlikely that the different stakeholders will completely remember the details of a development that started over a decade ago. Thus, for SBR Jaarrekening the change in vision in 2018 was taken as the starting point, since this falls within the period that had reasonable documentation. For the other two cases, the initial start was taken into account as those are recent enough that the documentation is still available.

Lastly, with regard to reliability this chapter discusses the procedure that was followed with regard to the case analysis (Yin, 2009), which includes the document analysis and interviews. However, these case studies focus on the interpretation of the different individuals involved with the information chains. Consequently, there is the possibility that should the same interviewees be interviewed about their opinions regarding the development again that they have different details top of mind. Additionally, semi-structured interviews were held. Therefore, different researchers are likely to ask different follow-up questions should this study be repeated. This could affect the information obtained from the interviews.

### 2.3 Case analysis

This study holds an interpretive stance, since the development and implementation of the various information chains were analysed through the meaning that the different individuals involved assigned it. Thus, the social constructs that are behind the organisational side of these information chain are of particular interest (Walsham, 1995). The individual cases were analysed following the hermeneutics as defined by Klein and Myers (1999):

"The process of interpretation moves from a precursory understanding of the parts to the whole and from a global understanding of the whole context bank to an improved understanding of each part ..." p.71.

The cases were built by starting with the social and historical context from the available documents to establish the background against which the development had happened. Furthermore, the documents were then used to develop an overview of the different stakeholder groups and their involvement in the development. This formed the basis for the interviews which focused on the motivation and the interviewees' interpretation of the expectations and divisions of roles. This was used to answer the first sub-research question with respect to the stakeholder interest and roles over time (see Section 1.4.1).

For the second sub-research question with respect to the development of the agreement frameworks (see Section 1.4.1), the few existing agreements or project proposals were analysed and considered against the information obtained in the interviews. This was done to establish the effectiveness of said agreements and whether or not there were additional informal agreements. All the information from the interviews and the documents was then combined to answer the third sub-research question about the influence of agreement frameworks on stakeholders' interests and roles.

Once an overview for each of the cases was established, the three cases were compared with each other to search for similarities and differences. These were then used to arrive at an overview of factors that were found by the interviewed stakeholders to have an effect on the development and implementation of the information chain. Then guiding principles for the B2B information chain were developed based on literature and information from the interviews that would address the factors improving or hindering the implementation. Which addresses the main research question of this study.

## 2.4 Document analysis

The documents that have been analysed consisted of external publications from SBR Nexus, evaluations about the development, and meeting notes/presentations made during the development. The evaluations and external publications have been used to generate an overview of the situation and provide background information. This gave information about the type of information that should be looked for within the documents as well as providing a starting point for the questions during the interviews (Bowen, 2009). These documents were

obtained by going through the archive that is available at SBR Nexus. In addition, publications by professional associations representing the different stakeholder groups were taken into account.

Once the available documents were scanned for an overview of the three cases, they were analysed in more depth. The documents were specifically analysed for information with regards to the stakeholders that were involved and if there were any changes that were specifically reported in the documents. Furthermore, the documents provided an overview of the different formal agreements that SBR Nexus is part of.

### 2.5 Interviews

The author held interviews with the main stakeholders in nearly all the cases, in the SBR Huurinformatie case this was not possible due to external circumstances <sup>1</sup>. Ideally, the interviewees selected were involved from the start of the development. However, this was not always possible. To overcome this problem additional interviews were conducted such that between multiple interviewees the entire period was covered. It should be noted that there will be a bias in interviewees towards those interested and enthusiastic about the SBR information chains. Nevertheless, as Eisenhardt and Graebner (2007) stated it is unlikely that interviewees from various different stakeholder groups will all engage in retrospective sense making, thus there should still be varied views among those interviewed. The interviewees were selected based on the available contacts within SBR Nexus. For each of the cases the specific stakeholder groups from which interviewees were selected are discussed below. Unless specifically stated otherwise, one person was interviewed for each stakeholder group in each of the cases, because of the limited time available to conduct and process the interviewes.

The interviews were held in a semi-structured form to allow the interviewe to steer the direction of the interview to what they experienced during the development of the information chains. From the document analysis it became clear that, while the stakeholder involvement and the formal agreement frameworks were detailed, the roles the different stakeholder had were not and thus formed the main questions (see Appendix B for an overview of the interview questions). The interviews started with questions about the position and implementation of the information chain from the perspective of the interviewe. Due to the nature of the interviews follow-up questions based on the direction of the interview were asked. The interviews were held over a period of two weeks in May 2022 and were all held via Microsoft Teams meetings. The Teams meetings were recorded and later transcribed. The interviews were held in Dutch as this was the first language of both the interviewer and the interviewees.

The interviews were transcribed near literally, space fillers were removed to improve the readability of the transcript. These transcripts were then coded, first with open coding to get a general idea of the topics that were included. Followed by axial coding to refine and categorise the codes found with open coding (Jenner, Flick, von Kardoff, & Steinke, 2004). Axial categories that were used are roles, role expectation, stakeholder interest, process implementation, implementation limitations, and communication. These form the basis for the memos and summarisations that have been made based on the interviews.

### 2.5.1 SBR Jaarrekening

In the SBR Jaarrekening case three representatives of the stakeholder SBR Nexus have been interviewed to cover the entire period of development. This includes interviews with people who could also give background information on the transition in development direction, vision, and organisational changes that gave rise to the change in vision in 2018 and the situation directly after the change. Therefore, the context regarding the change from SBR Banken to SBR Nexus could be taken into account, which will be further explained in Section 4.1.1. Additionally, one of the representatives was interviewed about the current situation. In the case of the banks two different departments were interviewed, both the account manager side and the SBR process side, the difference

<sup>&</sup>lt;sup>1</sup>An interview with both a software supplier and a property owner was planned during a scheduled test for SBR Huurinformatie. This test was scheduled near the end of the research period (mid-June), unfortunately the agenda of this test was changed at the last moment leaving no time for the interviews. The combination of a late original planned date and last minute cancellation meant that it was not possible to reschedule the interviews.

will be explained in Chapter 4. These interviewees were part of different banks and as such could also address the different viewpoints of the banks.

Two accountants and an accountancy software supplier were interviewed. One accountant was from a firm that has implemented the information chain without being involved in the development of SBR Jaarrekening. While the other accountant interviewed is involved in the work groups that direct the development of SBR Jaarrekening. As noted there has likely been a reaction bias from accountants that are enthusiastic towards SBR in accepting the invitation.

Thus, in total eight people were interviewed about the development of the SBR Jaarrekening information chain of whom three represented SBR Nexus, two bank representatives, two accountants, and one software supplier. A third accountant was contacted, but did not reply. With regard to representatives of the banks there was the option to interview more people. However, they were part of one of the banks that was already interviewed for this case and time did not allow for additional interviews. Lastly, one of the potential interviewees for the earlier phase of development of SBR Nexus declined the invitation for an interview.

### 2.5.2 SBR Taxatierapport

Interviews were held with a representative from the banks, software supplier, valuer, and SBR Nexus stakeholder groups. With the exception of the representative from SBR Nexus all these interviewees have been involved in the development of SBR Taxatierapport from the start, thus allowing for an overview of the changes in time. The gap in knowledge by the SBR Nexus representative was covered by adding an additional interview with one of the people that initiated the development of SBR Taxatierapport under SBR Banken. In total five people were interviewed for this case. No additional representatives of stakeholders were invited for an interview due to time limitations.

### 2.5.3 SBR Huurinformatie

For this information chain multiple people from SBR Nexus were interviewed to cover the entire development of the chain. Additionally, a representative from the banks was interviewed. As stated above, due to external circumstances it was not possible to interview a software supplier and property owner (see footnote 1). This does affect the research in that one side of the stakeholders' views on the division of roles and stakeholder involvement cannot be determined. Thus, in total four people were interviewed of whom two represented the banks and two represented SBR Nexus.

## Chapter 3

# Literature review

As discussed in Chapter 2 this literature review will look at the components that comprise standard business reporting. Furthermore, different types of governance structures will be explored for their agreement frameworks, should they exist for those types of governance structures. Lastly, stakeholder literature will be discussed, looking specifically at their involvement, classification, and roles.

### 3.1 Standard business reporting

The specific type of information chain that is being analysed is a SBR chain, which can be defined "as a deliberate and coherent set of of standards allowing for the implementation of inter-organizational information systems that enable Qualified Information Exhange, or QIE (van Wijk et al., 2016)" (Bharosa et al., 2018), p.1. The use of a SBR information chain can have benefits, such as improved accuracy and reduced costs (see Chapter 1), as a result of the system integration. However, the benefits can also be more transformative, such as automated auditing, due to standardisation (Bharosa et al., 2015). However, the extend of the benefits is linked to the number of users, since an information chain shows network externalities (Bharosa et al., 2018).

Hulstijn et al. (2011) found that the development of SBR information chains has four main challenges that have to be taken into account, namely 1) legal data requirements, 2) provenance, 3) process compliance, and 4) multiple stakeholders. Provenance means that quality of the data needs to be assured, in addition to its origin and history. The process compliance looks at how the data is handled and that it is restricted by rules. While they looked at SBR for public-private interactions, these challenges will likely also be encountered in the private-private information systems that are under consideration here. Additionally, they observed that during the development of SBR not only the technical layers should be taken into account, but also the governance layers. Or as Hulstijn et al. (2011) described it:

"SBR is more than technology. It is a set of agreements about standards and procedures." p.147.

### 3.1.1 Adoption of SBR

Bharosa et al. (2018) gave an overview of some of the instruments that can be found in literature to steer the adoption of SBR. One of the suggested steering methods is exertion of power by the dominant organisation within the network e.g. using sanctions against the other parties. Within the public-private sector they found that mandating was the most effective way of steering the other parties towards adopting (Bharosa et al., 2018). However, Kreuzer (2017) found that the effect of coercive power by the dominant stakeholder depended on the technical readiness and awareness of the other stakeholders within the chain. In case these were high then exertion of power would be effective to steer the chain towards adoption of inter-organisational information systems. If the technical readiness or awareness was low more non-coercive strategies were found to be more effective. Examples of non-coercive strategies are providing support and information to get the other stakeholders which an exertion of power could be a follow-up step should the stakeholders

become technically ready, but not willing to adopt.

Aside from the coercive manner, it is also possible to use persuasion to steer other parties into accepting SBR by trying to actively influence the opinion other stakeholders hold (Zhu, Kraemer, Gurbaxani, & Xu, 2006). Similarly, the exchange of knowledge can help with the adoption of SBR. This includes publishing documentation about the existence of the technology, but it can also be specific personal or informal knowledge transfer between the parties (Newell, Swan, & Galliers, 2000). Kreuzer (2017) also mentioned that providing training and information could help with overcoming low technical readiness that can stand in the way of exertion of power by the dominant stakeholder.

Barriers to adoption can be the adoption costs or switching costs if the other stakeholders already have a different system (Zhu et al., 2006). A potential solution to this is to subsidise the stakeholders that are held back by these costs. The subsidising stakeholder can use the network effect for SBR solutions, so they only have to subsidise e.g. software suppliers up to a critical number after which the rest of the market will follow without being subsidised (Riggins, Mukhopadhyay, & Kriebel, 1995). However, this type of steering does run the risk that stakeholders who would benefit from the information chain will also receive the subsidy.

With regards to steering the development, Bharosa et al. (2018) found that proactive steering is needed with the steering elements described above. Furthermore, they found that it is essential to get the software suppliers on board, as they provide the possibility for the other stakeholders to use the SBR information chain.

### 3.1.2 Standardisation

As mentioned above, one of the aims of SBR is the standardisation of reporting in the financial sector. With standardisation being a process were harmony in terms of format or procedure is sought to increase the efficiency of economic activity (Tassey, 2000). With a standard being defined as "a construct that results from reasoned, collective choice and enables agreement on solutions of recurrent problems" by Tassey (2000), p.588.

In the case of business reporting the recurring problem is the need for a business to submit similar types of (financial) data to different organisations, both public and private, whilst using a different systems each time. In the case of SBR, the functions of the standard are to provide a minimum reliable quality to the received data, ensure compatibility across multiple stakeholders, and reduce the variation in the types of data (Tassey, 2000; Bharosa et al., 2015; Hulstijn et al., 2011). The development of SBR by the government can be seen as a de jure standard that is ultimately enforced by law (David & Greenstein, 1990; Bharosa et al., 2015). Its private counterparts on the other hand can be characterised as a consortium lead standard (Shin, Kim, & Hwang, 2015), since the three banks set up an organisation to set a standard for the financing market. This organisation will be discussed in further detail in Section 4.1.1.

### 3.1.3 Taxonomy

At the basis of the SBR development are taxonomies that form the basis for the standard. A taxonomy is defined as a hierarchical dictionary that contains a specific tag for each individual item of data, their attributes, and their interrelationships (Chang & Jarvenpaa, 2005; XBRL International, n.d.-b). Therefore a taxonomy itself does not contain any data, it only contains the descriptions of the data items. Due to the data items being unambiguously defined, it is possible to make the data sets computer-readable and automate the reporting process, because the data will be interpreted in the same manner each time (Bharosa et al., 2015). Taxonomies are a solution to the syntactic and semantic inoperability (Scholl & Klischewski, 2007), since they provide a common language and standardised method of interpreting the data items.

Another benefit is that the same data set can be used for different reports to different organisation as long as the underlying taxonomy is the same (SBR, n.d.-b). Furthermore, the taxonomies are only loosely coupled to technical infrastructure (Bharosa et al., 2015), thus allowing the different organisations that work with the data set to maintain their own infrastructure as long as it can read the common taxonomy.



**Fig. 3.1.** Overview of the relationship between the data, context, and concept within XBRL. Additionally, it shows what is part of the XBRL instance document and what is part of the XBRL taxonomy. Adapted and translated from (Ramin et al., 2006), p.10.

The taxonomies are generally build upon existing definitions within the field it is going to be used in. Generally starting with internationally defined data items, such as the definitions by the International Organisation for Standardisation (ISO) or European legislation. Should there be no international definition for the data items then national definitions will be used. For example, definitions found in Dutch legalisation and guidelines for annual reporting or valuations (Müller-Wickop, Schultz, & Nüttgens, 2012). Lastly, any remaining chain specific definitions will be added that could not be found on any of the other levels (SBR, n.d.-b). It should be noted that " taxonomies cannot only model quantity information but also qualitative statements like notes" (Müller-Wickop et al., 2012), p.113.

SBR Nexus maintains two taxonomies, namely the financial taxonomy (*financiële taxonomie*, FT) and the real estate taxonomy (*vastgoed taxonomie*, VT) (SBR Nexus, n.d.). The FT is based on the Dutch taxonomy (*Ned-erlandse taxonomie*, NT) with specific additional definitions that the banks require when receiving information for evaluation of their loans to businesses (SBR, n.d.-a). These taxonomies are defined using eXtensible Business Reporting Language (XBRL). XBRL is an open international standard for defining taxonomies within business reporting (Bharosa et al., 2015). The XBRL standard is maintained by the non-profit consortium XBRL International (XBRL International, n.d.-a).

XBRL itself is comprised of four different elements (Müller-Wickop et al., 2012; Praditya, Sulastri, Bharosa, & Janssen, 2016). First, there are the rules for encoding the document that are based on an Extensible Markup Language (XML) standard (Müller-Wickop et al., 2012). The second element is the XBRL taxonomy which is described above. Then, there is the instance document which is "a list of facts/data points associated with conceptual information defined by the associated taxonomy" (Müller-Wickop et al., 2012), p.113, this is were the actual (financial) data is represented within the XBRL system. This also includes context information and information about the units of the reported data (Ramin, Kesselmeyer, & Ott, 2006). An overview of how the instance document and the XBRL taxonomy are related is shown in Figure 3.1. Lastly, there is the XBRL specification which defines how XBRL works, this includes the rules and technologies (Doolin & Troshani, 2007). As a consequence of this XBRL specification, instance documents for different taxonomies can be read by the same software tool (Doolin & Troshani, 2007).

### 3.2 Agreement frameworks

As stated in Chapter 1, there are many aspects of information chains about which agreements have to be reached, such as but not limited to how the chain is governed, how data is treated by the stakeholders, and what their roles are. The roles and stakeholder involvement will be discussed in Section 3.3. Unfortunately, literature on this subject is quite fragmented, for example the governance of data within organisations has been discussed

at length in the field of data governance (Abraham et al., 2019). While, the inter-organisational collaboration aspect is addressed in network literature such as by De Bruijn and Ten Heuvelhof (2008). Yet, to the extend of the author's knowledge there is only limited literature available on how agreement frameworks are build up in inter-organisation information chains. Literature with respect to the development of inter-organisation chains tends to focus on supply chain development where physical goods and parts are going from one company to another instead of data.

### 3.2.1 Data governance

Data governance is often equated to data management, however data management here is taken to be the day-to-day execution of the overall data governance (Abraham et al., 2019). With data governance defined as:

"Data governance specifies a cross-functional framework for managing data as a strategic enterprise asset. In doing so, data governance specifies decision right and accountabilities for an organization's decisionmaking about its data. Furthermore, data governance formalizes data policies, standards, and procedures and monitors compliance." (Abraham et al., 2019) p.425-426

Within this definition cross-functional is taken to be the collaboration across functional boundaries or subject areas. Here, the unit of analysis for collaboration can be scoped either as intra-organisational or interorganisational. The latter being the more interesting scope for this research. However, the consequence of this collaboration is that while it can bring numerous opportunities it can also make data governance more complicated (Abraham et al., 2019; Rasouli, Trienekens, Kusters, & Grefen, 2016). One of the problems that could arise is ambiguity about the ownership of the data and who controls the data. Other problems that can have far reaching consequences when sharing financial data is low quality data or unauthorised people accessing the data (Rasouli et al., 2016). These problems can also occur in intra-organisational data governance, yet the complexity in the case of inter-organisation data governance will be higher. This is a consequence of the stakeholders not being part of the same organisation and thus not necessarily having the same overarching objective.

Brous, Janssen, and Vilminko-Heikkinen (2016) stated that the formal goals of data governance should be that it 1) enables better decision making, 2) ensures that all parties remain compliant, 3) that it increases business efficiency, and 4) that organisations are supported when integrating the inter-organisational information chain within their own business processes. There is little use in integrating data between organisations if the data is not used in a meaningful way by the organisations. A difference can be made between the data quality and the information quality within data governance. Here "data quality is the degree to which data is accurate, complete, timely, consistent with all requirements and business rules, and relevant for a given use." (Ladley, 2020) p.25, while "information quality is the degree to which information consistently meets the requirements and expectations of knowledge workers in performing their jobs. In the context of a specific use, the degree to which information is meeting the requirements and expectations for that use." (Ladley, 2020) p. 25. Thus, when agreements with regards to data sharing are made they should not only take the quality of data into account, but the quality of the information as well.

Tied together with this is the structural governance which determines the manner in which things are reported, what the governance bodies are and what their accountabilities are (Borgman, Heier, Bahli, & Boekamp, 2016). This includes the roles of the different stakeholders involved, which will be further discussed in Section 3.3.3. Where the accountability and mandate for the decision making lay, have been linked to the type of organisation and what their organisational form is, such as centralised or decentralised (Otto, 2011). However, this will not directly translate to inter-organisational data governance as there will generally not be just one organisational form present among the stakeholders. Additionally, the mandate that the different stakeholders have, with regard to the terms and conditions for the data exchange, will be influenced by the relative size the different stakeholders have in the chain or network (Choi & Kröschel, 2015).

Thus, with regard to governance structure decisions about data policies, standards and procedures will have to be made (Abraham et al., 2019). Ideally, these should be formalised in a framework that makes clear to all parties what is expected of them. Janssen, Brous, Estevez, Barbosa, and Janowski (2020) gave an overview of what elements could be found within frameworks for trusted data sharing, these included an overview of the requirements for data sharing, a set of standards, a collection of contracts and agreements, authorisation

schemes, and methods to enforce compliance. However, it should be noted that most corporations, including the banking sector, do not have a comprehensive strategy when it comes to their data governance (de Abreu Faria, Maçada, & Kumar, 2013).

### **3.2.2** Inter-organisational systems

With regard to inter-organisational systems there are a number of different forms of governance described in literature, such as network, platform, and multi-layered governance (Ansell & Torfing, 2016), which will be discussed here.

### 3.2.2.1 Network governance

Networks are different from (information) chains in the way the dependencies arise between the organisations, as described in Section 1.2. However, governance structures within networks can still provide an insight into what type of agreements promote the functioning of the network and what is detrimental. With network governance being defined according to Jones et al. (1997):

"Network governance involves a select, persistent, and structured set of autonomous firms (as well as nonprofit agencies) engaged in creating products or services based on implicit and open-ended contracts to adapt to environmental contingencies and to coordinate and safeguard exchanges. These contracts are socially - not legally - binding." p. 914.

Within this definition, persistent is taken to mean that the parties collaborate repeatedly over time and structured means that the exchanges between the firms follow a pattern that stems from the division of tasks. While the definition emphasises autonomous firms, this should not be taken to mean businesses with common ownership, such as SBR Nexus, are excluded from network governance. Furthermore, while the relationships between all parties are defined by informal contracts, this does not exclude that some members do have formal contracts in addition to the informal ones (Jones et al., 1997).

Interpersonal relationships between the actors form the basis for the governance structure within a network, which will be based on trust, reciprocity, mutuality, and reputation (Jones et al., 1997; Keast, 2016). However, when a limited number of parties works together in a network, norms and rules tend to develop which are not always visible or clear (Keast, 2016). Additionally, there is the risk that parties do not feel obligated to abide by the rules as there are no sanctions (Winkler, 2006). This does mean that personal relations between the individuals of the different firms are important to align the attitudes and perspectives, yet important individuals for different firms can change over time leading to changes in attitude and objectives from different firms (Winkler, 2006). Kravets and Zimmermann (2012) stated that governance structures should be flexible to accommodate changes in participants (or their views) and changes in outside conditions that could affect the collaboration. Ostrom (1986) distinguished a number of different types of rules that can emerge, namely:

- position: the position the stakeholders have within the network;
- boundary: specifications on when and how stakeholders can enter or exit a position;
- authority: entails what can and cannot be done in the different positions within the network;
- aggregation: pertains to the division of decision functions and indicates what partial decisions are grouped together;
- information: specifies how communication is done;
- pay-off: regulations with respect to the distribution of the benefits.

However, these rules are not static within a network, they change with the application and interpretation of the rules by the stakeholders. Yet, due to the rules often being part of a large interconnected set, changes in the rules tend to be gradual. Additionally, for the rules to be followed they need to be acceptable by the stakeholders (Koppenjan, Koppenjan, & Klijn, 2004). Or "Rules structure the behaviour of actors but, in interaction, are also formed by these same actors (Scott, 1995)" (Koppenjan et al., 2004), p.76.

Another point of consideration according to Winkler (2006) is the variety of goals among the different participants within a network or chain. The collaboration likely has multiple levels of objectives, namely overarching goals of the network, the individual organisation's goals, and the goals for the individual people that represent their organisations (Huxham & Vangen, 1996). Therefore, rules should be present about the decision making process with regard to the joint objective, either that is done in a joint manner or there is a central position that has the right to make decisions (Winkler, 2006).

Provan and Kenis (2008) developed three models of governance for goal-directed organisational networks. A goal-directed network is set up with a specific purpose by its participants or through a mandate (Kilduff & Tsai, 2003). The three governance models are shared governance, lead organisation-governed networks, or network administrative organisation (NAO), Table 3.1 contains a number of the key predictors for the different governance forms.

Governance Forms	Trust	Number of Partici- pants	Goal Consensus	Need for Network- Level Competen- cies
Shared governance	High density	Few	High	Low
Lead organisation	Low density, highly centralised	Moderate number	Moderately low	Moderate
Network administrative organisation	Moderate density, NAO monitored by members	Moderate to many	Moderately high	High

Tab. 3.1. Overview with the key predictors for the different network governance forms. Source: (Provan & Kenis, 2008), p.237.

#### Shared governance

A shared governance structure within a network is based on involvement and commitment of all, or at least a significant subset, of the stakeholders that make up the network. The stakeholders themselves make the network-level decision and power is distributed roughly equal among all the parties involved in the network. Thus, "the network acts collectively and no single entity represents the network as a whole." (Provan & Kenis, 2008), p.235. The governance can either be done formally or informally within this type of governance. In a more formal setup representatives of the organisations have regular meetings, whilst informally it is more the uncoordinated efforts of the stakeholders that keep the network functional.

As can be seen in Table 3.1 this form of governance does require a high level of trust in the network. It should be noted here that the trust ties should be dense, not necessarily that the specific trust relationships themselves all need to be very deep. In essence the perception of trust needs to be shared among the network members. As mentioned the network members hold equal decision-making power, thus this form of governance works best if there is a high degree of consensus with regard to the goal of the network. With regard to the number of organisations within the network, this form works best if this number is low since this allows face-to-face participation. However, complications in governance can arrive if the network members are geographically spread out. Lastly, a high demand for interdependent tasks that can go above the skills of the individual members are detrimental for the effectiveness of this form of governance (Provan & Kenis, 2008).

#### Lead organisation-governed

The lead organisation-governed form is the other extreme compared to shared governance. Here all the keydecisions and activities are coordinated by one lead organisation within the network. As a consequence the power distribution within the network is highly asymmetrical and the network has a highly centralised governance structure. This type of network governance is often seen in buyer-supplier relationships where there is one large buyer or supplier and the recipient firms (buyers or suppliers) are many and small. Alternatively, this form occurs in horizontal multilateral networks where an organisation has the resources and legitimacy to take the lead role (Provan & Kenis, 2008).

The trust density within the network can be lower in this form of governance, however the lead firm has to be at the centre for dyadic ties within the network. Furthermore, a large number of network members is not

problematic for this governance structure due to the centralised nature of the governance structure. It is less important that all the network members can have face-to-face participation. In this type of governance only a moderate goal consensus is required. It might even be advantageous if the other network members cannot resolve conflicts with regard to the goal on their own as this gives the lead organisation the opportunity to assume most strategic decisions. Lastly, this model of governance is more likely to develop/have the network-level competencies that are needed. However, if this is not the case the lead organisation may be reluctant to invest (Provan & Kenis, 2008).

#### Network administrative organisation

The NAO model of governance has a separate entity that is set up to govern the network and its activities. This is similar to the lead organisation-governed in that it is a centralised model. The scale of the entity can range from a single network facilitator to an entire formal organisation. Should the NAO be a formal organisation, then its board often consists of representative of the network members (Provan & Kenis, 2008).

The trust density among the network members for this type of governance model can be lower than in the case of a shared governance, however more trust is required than with a lead organisation as the network members have to monitor the NAO leadership. Within networks that have many members this is likely to be the most effective form of governance due to having its own administrative structure. Similarly, the NAO model will be best suited when there are high network-level competencies required, since it is the staff's job to develop the required skills. However, this governance model can be limited by resource constraints. Lastly, this model requires more consensus with regard to the goal than the lead organisation-governance needs, because a subset of the member will need to be more involved in the direction of the NAO (Provan & Kenis, 2008).

### 3.2.3 Platform governance

When looking at digital information infrastructure, one can also look at platform governance for control and decision rights within inter-organisational information exchange. With platform governance defined as "entails how the authority and responsibility for each class of decisions is divided between the platform owner and module developers (i.e., degree of decentralization)." (Tiwana, Konsynski, & Bush, 2010), p.680. Within the information exchange networks there is the complication that the networks consist of a heterogeneous set of systems with actors owning and operating parts of it, yet no stakeholder has full control over the whole process (Klievink, Bharosa, & Tan, 2016). Thus, according to Klievink et al. (2016) governance structures should be used to come to agreements about the (technical) standards and the procedures that guide the activities of the information chain.

These structures should include rules with regard to the decision rights, formal and informal methods of control, and an ownership structure (Tiwana et al., 2010). This system of governance should be clearly defined before implementation of information sharing systems to avoid conflict among the users (Praditya et al., 2016). A point that does tend to result in difficulty are the agreements with respect to shared costs, since the costs and benefits of inter-organisational information systems are often not divided equally among the participating parties (Klievink et al., 2016).

With regard to the decision-making, Tiwana et al. (2010) split this up in three broad classes of rights that have to be divided 1) what should the (sub)system do, 2) how should this be accomplished, and 3) who controls internal interfaces. For control they had two models with respect to formal control (Tiwana et al., 2010). Firstly, there is output control were the developer's output are compared to a criteria set by the platform owner and the developers are rewarded/punished accordingly. On the other hand, there is process control where the owner sets the procedures that must be followed. Lastly, there is informal control, here described as clan control, in which common values and norms are used to guide the development. With respect to ownership Tiwana et al. (2010) described two different models of ownership, namely whether it is owned by multiple or one organisation. This should not be confused with whether or not the platform is open, since a platform can be open whilst also being proprietary to one organisation.

Perscheid, Ostern, and Moormann (2020) developed a platform governance framework based on five components: decision rights, transparency, accessibility, trust, and incentivisation. The three different types of governance they found were centralised, decentralised, and autonomous see Table 3.2.

Туре	Component	Dimension		
	Decision rights	Single authority		
Centralised	Transparency	No or very little transparency		
Platform Governance	Accessibility	Strict participation regulations and poor accessibility		
	Trust	Institution-based		
	Incentivisation	Order-based improvements of the platform; no or low incentives		
	Decision rights	Community		
Decentralised Platform	Transparency	Transparency for community members		
Governance	Accessibility	Permeable participation control and good accessibility		
	Trust	Community-based		
	Incentivisation	Pecuniary and non-pecuniary in- centives		
	Decision rights	Code-based		
Autonomous Platform	Transparency	Full transparency (community and non-community members)		
Governance	Accessibility	No participation regulations and full accessibility		
	Trust	Technology/code-based		
	Incentivisation	Mostly non-pecuniary incentives		

### Centralised platform governance

With this type of governance the power with regard to decisions is concentrated in one person or entity who typically represents the platform owner (Tiwana et al., 2010; Perscheid et al., 2020). Thus, decision rights are highly centralised in this form of governance, which is quite similar to lead organisation-governance within network governance. As a consequence, the transparency tends to be low as the platform does not have to disclose why or how the governance structure is taking place (Tumasjan & Beutel, 2019). Furthermore, the accessibility to the platform is very limited with strict boundaries set by the entity that controls the platform (Perscheid et al., 2020; Staykova & Damsgaard, 2015). Given the lack of transparency and accessibility, trust is based on the terms and conditions that provide a formalised manner of dispute resolution. Lastly, due to the centralised nature of governance it is possible for the central company to provide monetary incentives to stimulate the development in a certain direction (Perscheid et al., 2020).

### Decentralised platform governance

On the other side, there is decentralised platform governance were the decision-making rights are distributed among the users of the platform, this type of platform is generally community-led (Glaser, Hawlitschek, & Notheisen, 2019). As a result the platform is more transparent and accessible, because the users are also part of the governance structure. However, trust needs to be more decentralised as well, the network has to trust both community and the underlying technical process. In this form of governance the incentives can be monetary or in the form of reputation (Perscheid et al., 2020).

### Autonomous platform governance

Here the governance is fully determined by the code itself. Thus all the governance rules, decision rights, and controlling entities are included in the code e.g. smart contracts. As a consequence, the information is accessible and transparent for those that are part of the platform, but also those that are not part of the platform (Perscheid et al., 2020). Here the trust will be entirely based on the technology that is behind the platform (Glaser et al., 2019). The incentives will mostly be of the non-monetary variant (Perscheid et al., 2020). However, it should be noted that this form of governance is so far a theoretical concept (Glaser et al., 2019).

### 3.2.4 Multi-layered governance

Schreieck, Wiesche, and Krcmar (2018) observed that platform ecosystems that involved established companies the governance structure is layered. The first layer being the internal business itself. The second layer consists of the core partners that the companies are in a network with, and lastly there are the peripheral partners. The type of governance for each of these layers is different. The first layer internally, will have the intraorganisational infrastructure which could be hierarchical and central or more decentralised. With the first layer of inter-organisational governance it is seen that decisions are often made in a joint manner and contractual governance is used for the control mechanisms in the network. Both of these layers have clear manners of control. The peripheral partners have a more informal relationship with the organisation, so more of a network governance type interaction. Although partners in this group generally have no decision rights with respect to the direction of the development of the platform, they are more autonomous in the manner in which they use the platform for their own applications (Schreieck et al., 2018).

### 3.3 Stakeholders

### 3.3.1 Involvement

When setting up an information chain the stakeholders will have to be involved at the start to get an idea of the requirements and needs of the different stakeholders. However, due to the changeable nature of information the stakeholders will have to remain involved as decisions about implementing changes have to be made (Bharosa et al., 2015). Additionally, the interests of the stakeholders can also evolve and change over time (Janssen, 2005), thus resulting in the need to involve stakeholders during the development of the chain but also afterwards in the maintenance of the chain. Ideally, all stakeholders with their interests would be taken into account for both development and maintenance, yet often this is not practical (Mitchell et al., 1997).

The selection of the stakeholders can be done based on the classification systems which will be discussed in Section 3.3.2 or one of the other methods described by Mitchell et al. (1997). For example, stakeholders could be divided into primary and secondary stakeholders, where primary stakeholders are the stakeholders without whom the project cannot continue. Selection should then ensure that the primary stakeholders are involved in the development. Another method for selecting stakeholders is based on the commitment the different stakeholders show towards the the project (Burnay, Jureta, & Faulkner, 2015). Burnay et al. (2015) found that the quality, quantity, and efficiency of the information about the requirements stakeholder had for the project improved as the stakeholders were more committed to the project. Although, it depended on the specific task how large the influence of commitment was on the resulting information. For example, tasks that came up frequently, such as providing factual information for the project, were not sensitive to the level of commitment of the stakeholder. A limitation of Burnay et al.'s study is that it is an explorative study that looked at intra-organisational projects, thus the generalisability to inter-organisational projects is limited. However, it could be an interesting angle to analyse the stakeholder selection from.

Furthermore, not all stakeholders are willing to participate in cases where there is no legal drive to require them to become involved. In inter-organisational digital integration projects, such as setting up an information chain in a B2B context, it is critical that the stakeholders see a business case to participate (Buiten et al., 2018). For example during the development of an information chain between firms and National Statistical Institutes, there was a lot of interest from the software developers as they would have a key role in the new system, whilst accountants and other intermediary service providers were not enthusiastic as this development would cause them to loose their business case. For stakeholders to participate in the development of a chain their expected benefits should outweigh the cost of participation e.g. transaction cost (money and time) and the loss of autonomy of being part of an information chain (Bharosa et al., 2015). Even when stakeholders have been selected that are willing to participate, this does not necessarily mean that they are the appropriate individuals to represent certain groups of stakeholders. Beirne, Ramsay, and Panteli (1998) found that often the individuals were chosen based on their position or status instead of the knowledge they could contribute.

Aside from stakeholder selection and participation Coughlan et al. (2003) identified three other dimensions of stakeholder involvement, namely stakeholder interaction, communication activities, and techniques. Stakeholder interaction is seen as the communication between the different stakeholders, which is mediated by the following factors: culture and politics, communication schedule, methodological approach, and roles. The culture within an organisation has been found to affect how effective project management is and whether it can yield predictable results (Morrison, Brown, & Smit, 2008). In the case of inter-organisational developments this becomes even more complicated as it is not one organisational culture that has to be taken into account, but a number of different ones depending on the number of parties involved in the information chain. Within this development the different parties will take on different roles, which will be further discussed in Section 3.3.3.

Communication activities relate to the acquisition and negotiation of knowledge with regard to the requirements that are necessary for the development. They also include the acceptance of the requirements by the different stakeholders. The techniques refer to the aides that help in communicating the requirements, such as questionnaires, interviews, or brainstorming, just to name a few. This study, by Coughlan et al., looked at a small number of stakeholders within a limited number of software development projects, thus its generalisability with regard to best practices for stakeholder involvement is limited. However, the framework has been used as a guideline for analysing the development of shared service centres in e-government and how the shareholder involvement at different stages influenced the development (Janssen, 2005).

### 3.3.2 Classification

As discussed above, it is important that the right stakeholders are involved in the development. As such, it is needed to establish which stakeholders are the most relevant and what their positions are within the development. While there are many possible ways to classify stakeholders, two theories are discussed here, specifically the theory of stakeholder salience and the theory of stakeholder influences. The first theory classifies stakeholders according to how important their claim is compared to the other stakeholders within a given project or development. While the second theory looks beyond the specific development, it also takes into account the broader network in which the stakeholders operate.

### Theory of stakeholder salience

According to this theory stakeholders' claims should be afforded priority depending on the presence of the following three attributes: 1) power, 2) legitimacy, and 3) urgency of a stakeholder (Mitchell et al., 1997). With the attributes defined as the following:

- Power: the means of a party (stakeholder) to enforce their will onto the relationship/project.
- Legitimacy: if the actions of a stakeholder are seen as appropriate within the social construct. This attribute heavily depends on the perception of other stakeholders.
- Urgency: the claim is of critical importance to the stakeholder and is time sensitive.

This leads to the classification of stakeholders in four different groups, with those without any of the attributes classified as non-stakeholders. Firstly, there are those stakeholders that only have one attribute, they are considered latent stakeholders and will often receive little attention. Secondly, there are expectant stakeholders who have two attributes, thus expect something from the process. The exact expectations will depend on the combination of attributes they have. Lastly, there are the definitive stakeholders who posses all three attributes and thus are seen as the most important stakeholders to keep in mind.

However, Mitchell et al. (1997) recognised that the attributes are not static and can be gained or lost depending on the perception of other stakeholders, since the three attributes are not objective but a social construct. Meaning that stakeholders with less salience should not be forgotten as they might gain attributes and thus change the circumstances.

### Theory of stakeholder influence

While the theory by Mitchell et al. (1997) looks at the individual contributions of stakeholders that can influence the operation, the network theory of stakeholder influences (T. J. Rowley, 1997) looks at the interactions between stakeholders and how the focal firm reacts to these influences. Here, the firms do not interact with each stakeholder individually, but respond to a network of stakeholders. A firm might be the centre of the stakehold-

ers involved with a particular project, yet at the same time it is also a stakeholder to other firms' projects. As a result, it is not necessarily the case that the focal firm is in the centre of the network. According to T. J. Row-ley (1997), the reaction of the focal firm depends on the density of the network and its centrality within the network. Here, density is the relative number of ties within a network and centrality looks at betweenness centrality, which is the extend to which an organisation acts as a connecting party within the network. With firms having a stronger position when they hold a more central position in a dense network.

Scholl (2004) found that these stakeholder interactions within the networks were useful for stakeholder selection during the development of e-governance solutions. J. Rowley (2011) further specified that instead of looking at stakeholders as groups, the roles stakeholders fulfil during the development should be taken into account when selecting stakeholders. However, it should be noted that, while e-governance deals with exchange of data, it is dissimilar to structured data exchange using information chains between firms in the financial sector in a couple of different aspects. Firstly, there is the public aspect of e-governance which means that the driving force behind the development can be forced by legislation, whereas this is not the case for B2B information chain development (Bharosa et al., 2015). However within the financial sector, banks could include fines (or other financial incentives) in their contracts to make other stakeholders use the developed solution (Buiten et al., 2018). Secondly, e-governance often deals with a lot of small stakeholders such as the individual citizens that have to use the system. While structured data exchange between banks and firms does have a number of smaller stakeholders, it also has to content with the larger companies and large intermediary firms such as accountancy firms.

### 3.3.3 Roles

First and foremost, it should be noted that actor roles are often quite abstract and not necessarily formalised (Poniszewska-Marańda, 2013). These roles can be taken up by individuals, i.e. a natural person, or private entities as a whole (J. Rowley, 2011). However, the roles private entities take within inter-organisational developments have received little consideration (Wouters et al., 2021). Specific roles within the development are not necessarily taken up by one actor, but they can be shared across multiple actors (Wouters et al., 2021; J. Rowley, 2011). Furthermore, the division of roles among the actors is not stationary and can change with time (J. Rowley, 2011).

Yet despite the changeable nature of roles during the projects, it has been observed that the roles and division thereof should be clear to all the stakeholders to avoid conflict among them (Sayogo, Gil-Garcia, & Yuli, 2020; Gil-Garcia et al., 2019; Coughlan et al., 2003). However, just defining the roles is not necessarily enough to make the roles clear, this information should also be communicated to all the parties involved. Within interorganisational collaborations boundary objects can have a mediating effect on the clarity of roles (Gil-Garcia et al., 2019).

Coughlan et al. (2003) found that unclearly defined roles could lead to stretching people's roles or abuses of power. Stretching of roles could happen when the roles are not clear in combination with limitations on resources. As a result, people take up roles that they are not qualified to take on. It should be noted that this study looked at intra-organisational projects, as such it might not apply in the case of inter-organisational projects due to differences in structure. Abuse of power is the more severe consequence of unclear roles as it can lead to serious disruption of the communication within the project. This can happen due to key actors prioritising their own goals instead of the common goals of the project (Gil-Garcia et al., 2019; Coughlan et al., 2003). Furthermore, it was found by Wouters et al. (2021) that the design, adoption and use of a service can be adversely impacted if the roles are unclear during its development.

To the extend of the author's knowledge there have been few studies done to develop an overview of the possible actor roles in an inter-organisational context despite the emphasis on the need for clearly defined actor roles. Wouters et al. (2021) developed an overview of possible actor roles in the context of inter-organisational digital public services based on prior literature in e-government, information system and public administration (see Figure 3.2). They found that there where three main categories of actor roles, namely perspective, service chain and coordination.



**Fig. 3.2.** Actor roles taxonomy developed by Wouters et al. (2021) with the simple black line indicating an association type relationship, the white arrow indicating the further division of roles into sub-roles, and the black arrow showing roles that can serve other roles. Source: (Wouters et al., 2021).

#### Perspective roles

"Perspective roles entail the viewpoint that coordinators take towards the actors involved in the digital public service, but also how those actors view their own role in the delivery and steering of the service provisioning." (Wouters et al., 2021), p.51.

While this definition is formulated for digital public services it could be expanded to the roles that an actor perceives another actor to have and the roles that actors themselves think they fulfil. Some of the perceived roles shown in the taxonomy (Figure 3.2) are not relevant in the case of information chain development in a B2B context, such as voter, citizen, public servant and political participator. The remainder of the roles can both apply to natural persons as well as legal entities. Papadonikolaki and Van Oel (2016) found that when a new information system is introduced which changes the way information is shared in an inter-organisational setting, this can result in a discrepancy between the role an actor perceives themselves to have and the role other stakeholders expect the actor to have. Additionally, it was found that this change in the inter-organisational information sharing can change the importance of certain roles within an intra-organisational structure of the private entities involved.

#### Service chain roles

"Service chain roles refer to the responsibilities and expected actions of all actors within the service delivery network (Bharosa et al., 2015)." (Wouters et al., 2021), p.52.

Three main roles were identified for the service chain role: user, intermediary, and public service provider. Again, this definition could be extended by not limiting the service provider to be public. Within a service chain the service provider creates the value. The intermediary adds value to the chain by allowing the users to be connected to multiple chains at the same time, such as the shared service centres within the SBR system in the Netherlands. These allow the user to be connected with multiple different requesting parties with respect to financial data (Bharosa et al., 2015). The user and intermediate role could be further sub-divided as seen in
Figure 3.2. In the case of users those sub-roles are end-user and internal intermediary. The internal intermediary may be a legal representative that carries the message or request from the system to the end-user (Wouters et al., 2021). With respect to the intermediates there were slightly more variations. Both the public and private intermediary service providers are for example the entities that create and maintain the building blocks for the information chain, this also means that as information chains develop these roles will often shift around. The last intermediary role that was identified was the mandate holder which refers to a natural person who needs access to the service on behalf of someone else (Wouters et al., 2021).

### Coordination roles

"Coordination roles, as a third group of actors roles, comprise responsibilities about the steering of the interorganizational digital public service's design and accomplish the strategic and operational goals set up by policy-maker." (Wouters et al., 2021), p.54.

Similar to the other two roles, this definition could be taken broader than the public sector by not limiting to goals set by a public policy-maker. For example, in the financial sector goals may be set by the larger banks that could be a powerful stakeholder in the development digital integration (Buiten et al., 2018). Alternatively, the goals could be set up as part of the negotiation between the different stakeholders.

It has been seen that these coordination roles are crucial with respect to establishing and maintaining the service (Wouters et al., 2021). The roles displayed in the taxonomy (see Figure 3.2) are mostly based upon the definitions given by Janssen et al. (2006), and Emerson and Nabatchi (2015). They found initiator, enabler, and champion to be the same role, consisting of convincing other parties to join the start of the development of a service. Similarly, Emerson and Nabatchi (2015) found facilitator and mediator to be the same role, defined as "bring their professional expertise to bear as impartial managers of collaboration dynamics, working to assure transparency and to build a consensus between the group's members." and they noted that an actor with this role would be helpful in sorting out disagreement among the parties involved. While Janssen et al. (2006) defined the facilitator role as "This role facilitates the implementation of cross-agency processes by collecting and disseminating best practices, reference models, and reusable system functionality such as identification, authentication, and payment.", p.51. Given the differences between the definitions given by Janssen et al. and Emerson and Nabatchi the mediator role could be defined according to the definition of Emerson and Nabatchi and facilitator defined according to Janssen et al..

Several other roles were defined by one or the other. The developer role pertains defining the requirements for each party that is involved in the cross-party collaboration (Janssen et al., 2006). Then the convener is the role that brings the required parties to the table and assures the right conditions for collaboration are met (Emerson & Nabatchi, 2015). The funding of the project, certainly at the start, is the role of the sponsor (Emerson & Nabatchi, 2015). This role is often closely related to the role of representative from one of the more powerful stakeholders (Emerson & Nabatchi, 2015; Wouters et al., 2021). While the participant represents main stakeholders to obtain shared benefits, this role could be seen as the same as the representatives role (Emerson & Nabatchi, 2015). The role of expert is responsible for translating the available knowledge in such a way that all stakeholders can understand it and make informed decisions with it (Emerson & Nabatchi, 2015). Lastly, the public decision making role supports the collaborative governance regime of the project from the outset (Emerson & Nabatchi, 2015), however within the information chain development in a B2B context this is unlikely to be a public actor. Yet, there could be actors that advocate for a collaborative development from the outset. The remaining roles in the taxonomy developed by Wouters et al. did not have an explicit definition or a reference to other literature where the roles are defined.

In addition to the roles included within Wouters et al.'s taxonomy, Janssen et al. (2006) defined more possible roles that could be present during the development and use of an information chain. Firstly, the standardisation role as one (or more) of the actors will have the responsibility of developing the standard for the integration of stakeholder systems with the information chain. Secondly, the role of process improvement because the information chain will have to be adapted as the requirements change during its use.

### Data governance roles

However, due to data being the main focus of the information chains literature on data governance is another source of possible actor roles. Abraham et al. (2019) included roles and responsibilities as one of the structural mechanisms underlying data governance mechanisms. They found that a number of roles with regard to data governance have been defined in literature although it should be noted that these focus on intra-organisational data governance. Yet, it is likely that similar roles will be taken on within an inter-organisational data governance structure as well.

In data governance an executive sponsor role can be found that is similar to the sponsor role that is described above with the only difference being the level of management the person is part of, this definition specified C-level executives (Weber, Otto, & Österle, 2009). Then there are the data governance leaders who are those responsible for the day-to-day running of the governance system (Abraham et al., 2019). With regard to the data there are four types of roles:

- data creator/producer
- data consumer
- data owner
- data steward

The data creator can be the party that itself creates the data, but can also be used to refer to the person that aggregates or maintains data created by others (Kooper, Maes, & Lindgreen, 2011). The user of the data is the data consumer. Data owners within data governance is used to describe the managers that are responsible for the data assets within their department (Abraham et al., 2019). Lastly, the data stewards are those who have specific and detailed knowledge about the use and requirements of data assets within the business and can translate this to technical requirements, they can also be seen as the subject matter experts on technical or business matters (Weber et al., 2009).

# **Chapter 4**

# **Case study: SBR Jaarrekening**

# 4.1 Background

The initial plans for the information chain SBR Jaarrekening started in 2009 with the vision towards a paper free credit process. The main goal was to digitalise and automate this process such that there are no manual human-to-system interactions. This led to the development of the banking taxonomy (*bancaire taxonomie*, BT), which went live in 2010 (Huis in 't Veld, 2022).

However, this taxonomy was made by the banks with little input from the other stakeholders in the chain resulting in a taxonomy that was not workable for the other parties. There were three different points where the taxonomy caused frustration to the other parties within the chain. Firstly, the software suppliers, which make the software used to make financial statements, had to become acquainted with the technique as they were not familiar with XBRL. In addition, the BT required a lot of information that was not standard in normal financial statements, thus both software suppliers and accountants had to find a way to incorporate this new data into their workflow. Lastly, often when accountants used SBR Jaarrekening, then called *kredietrapportage*, to send information on behalf of their clients to the banks they would be requested to send the PDF file of the financial statement as well. Thus, the number of financial year reports that were delivered to the banks through this system remained low, certainly since the PDF version was still widely accepted. Therefore, there was no need for the accountants to use the SBR information chain.

In 2017 the situation regarding *kredietrapportage* was assessed and it was concluded that the number of submissions of financial statements should be higher. Therefore, it was decided to change the approach to SBR Jaarrekening. Where initially it had mostly been focused on the needs of the banks and left to them to develop the taxonomy and standard by extension, now input of other parties within the information chain was taken into account. This resulted in a large shift in how the taxonomy was built up, going from maximising the amount of information to reducing the data to the minimal required data fields.

This change in attitude towards the taxonomy and involvement of the chain was communicated by changing the name and organisational structure of SBR Banken to SBR Nexus, which will be described in Section 4.1.1. The change in the taxonomy was clarified by changing from the large, and cumbersome in the eyes of the accountants, BT to the new FT in 2018. However, the new FT does come with three different versions (entry points), namely natural person (*natuurlijke personen*), limited (*beperkt*), and extensive (*uitgebreid*). The three entry points differ in how detailed the data is that is being send to the banks. Depending on the legal status of a business and size of the loan a bank wishes to receive a specific version. The three banks do not all keep the same criteria for when which version should be used.

### 4.1.1 SBR Nexus

The banks are united in the Financial Reporting Cooperative (*Financiële Rapportages Coöperatief*, FRC), which was established in 2009 (Huis in 't Veld, 2022). This cooperative set up the program between the banks, known as SBR Banken, that was responsible for the development of the technical infrastructure, definitions, and standardisation of financial reporting (Financiële Rapportages Coöperatief B.A., 2010).

This program, SBR Banken, was under the direction of the FRC board for which the three banks supplied the staff. As a result it was not an independent daughter company of the banks, which created a situation were the people would not stay very long and knowledge was lost <sup>1</sup>. In this period the system was expanded through the addition of commercial real estate with the development of SBR Taxatierapport in 2016 (Huis in 't Veld, 2022). However, in 2018 it was decided to turn SBR Banken into an actual daughter company that was stand-alone from the banks as opposed to the then SBR Banken program (Huis in 't Veld, 2022). At the same time an evaluation was done to assess the future of SBR in the private financial sector and it was decided to take a new direction.

It was determined that for the financial reporting side a new focus was needed where the accountant and software supplier were more involved in defining the taxonomy and the development of the information chain as a whole. This led to the name change from SBR Banken to SBR Nexus in 2018 to clarify the new direction <sup>2</sup>. Later mijn data mijn business (my data my business, MDMB) was developed, which allows businesses to directly submit their data to banks without the need of an intermediary (mijndata mijnbusiness, n.d.). Consequently, SBR Nexus is currently one of two trade names under the FRC together with MDMB (see Figure 4.1). Where SBR Nexus' role is to promote the implementation of a market standard and MDMB is the platform for businesses to connect (Huis in 't Veld, 2022). The three largest banks in the Netherlands are the members of the FRC with each equal voting power (Financiële Rapportages Coöperatief B.A., 2010).





<sup>&</sup>lt;sup>1</sup>The loss of knowledge due to changes in detached personnel was noted by different stakeholders interviewed by the author. This specifically came up in interviews with regard to the early development before the transition from SBR Banken to SBR Nexus.

<sup>&</sup>lt;sup>2</sup>The name change together with the change of focus was described in interviews with representatives from SBR Nexus, which were held by the author.



Fig. 4.2. Overview of the relationships between the main stakeholder groups in the SBR Jaarrekening information chain both contractual and informal.

# 4.2 Stakeholder categories

The SBR Jaarrekening information chain has five major stakeholders. These are the businesses that wish to obtain a loan from the bank, the accountant, the bank, the accountancy software suppliers, and SBR Nexus. These stakeholders are linked in a network where they are all dependent on one or more of the other stakeholders for information or actions, such as shown in Figure 4.2. However, not all of these relationships are formalised, as will be further discussed in Section 4.5. In addition to the main stakeholders, there are also a number of other parties that are affected by the development of the SBR Jaarrekening who are not directly involved, who will be discussed below.

Furthermore, in Figure 4.2 it can be seen that not all stakeholders have a relationship with all the other stakeholder groups in the network. SBR Nexus has no direct relationship with the businesses, their only relationship is indirectly as the sub-contractor of the bank. Additionally within this network there is a hierarchy of dependencies, it is the business that wishes a loan with the bank and thus has to comply with the regulations of said bank. The business hires an accountant as their intermediary to help meet the requirements of the bank. Lastly, the intermediary, the accountant, uses accountancy software that they acquire from one of the software suppliers.

### 4.2.1 Business

A business sets the chain in motion when they wish to acquire a loan from the banks. This requires that information is passed along the information chain to one of the banks. Within the Netherlands there are around 2.1 million businesses (cbs, n.d.-a) of which a subset will have loans (or want a loan) at one of the three major banks in the Netherlands. For example, of the roughly 2.1 million registered businesses about 1.1 million are freelancers (cbs, n.d.-b), who tend to have a limited financing need<sup>3</sup>. However, the subset that wishes to acquire a loan with one of the banks will have to provide information during the application. Additionally, businesses with a high outstanding loan (generally over one million euros) will have to provide information to the bank every year when they are reassessed to see if the loan still fits the business and risk model. Relevant for this case are the businesses that have to supply information to one of the banks related to their financing needs.

This stakeholder group is a very diverse group. Accountants divide this group in subcategories based on the size and legal registration of the business as dictated by law. They use the division of size as set out by the Dutch chamber of commerce (KVK, n.d.). Additionally, for smaller businesses there can be a distinction based on legal form, which is either a natural person or private entity. However, banks tend to group businesses based on the size of the (potential) loan that a business has with them, and not the chamber of commerce size

<sup>&</sup>lt;sup>3</sup>A. van der Pol, personal communication, June 2022

denotation. Therefore, there can be a contradiction between what size denotation the accountants and banks give the same business. The size denotation, specifically the one given by the bank, determines the type of data that the business has to supply. There are more ways to sub-divide businesses such as based on their branch, however these division are not relevant for this case. The business itself can be further sub-divided into different stakeholders, but as discussed below the business has very limited influence on the overall information chain. The business as a stakeholder is not involved in the development of SBR Jaarrekening, therefore the business as a whole will be taken as the stakeholder.

Furthermore, this stakeholder group generally has only limited awareness of the existence of SBR Jaarrekening. Often when they receive a letter from the bank requesting certain information they will go to their accountant or administrator to let them sort out the required information. Although, there tends to be a resistance from businesses to share detailed information with the banks (SBR Nexus, 2022b).

### Influence

The influence businesses have on the development of SBR Jaarrekening and specifically which data points are and are not included in the taxonomy is non-existent, since these data points are mandated by the bank. They are not involved in any of the information chain consultations during the development of a new iteration of the taxonomy. However, the development of this standard happens in a market with multiple banks, this gives the business a choice at which bank to request a loan. Therefore, banks will keep the customer journey in mind when deciding how strictly they will enforce the SBR Jaarrekening standard.

Consequently, the businesses have an indirect but substantial influence on the adoption of SBR Jaarrekening. The business is at the centre of the request for a loan and the party that connects the accountant and the banks. Although a difference should be made between businesses that are requesting a loan and those revising their loans. The later groups' influence is lower due to them already having a loan and thus a contractual obligation to supply information, where some banks now have made SBR Jaarrekening mandatory for them. Yet, the former group is likely to refuse the adoption of SBR Jaarrekening if this means the costs of an accountant is higher and they do not see the immediate benefit of it.

### 4.2.2 Banks

This stakeholder is the collective of the three banks that have set up the FRC (see Section 4.1.1). They should not be confused with the other banks operating in the Netherlands, which while affected by the development of SBR Jaarrekening (as will be discussed below) are not directly involved in the development of SBR Jaarrekening.

However, there are differences between the three banks that constitute the FRC in terms of their interests in the information chains. All three have (slightly) different priorities in terms of what needs to be included in the taxonomies or how it should be delivered. This is a result of the different internal processes and systems the banks have for the data they receive. Furthermore, all three banks will have slightly different risk models they use to determine whether or not a loan should be provided, thus requiring different inputs.

The information that the banks receive via SBR Jaarrekening has a couple of different purposes. Firstly, the financial statements they receive through SBR Jaarrekening are used to assess businesses that wish to acquire a loan from the bank. Additionally, the financial statements are used to revise the loan should this be needed. With regard to its internal processes, the data is used to calibrate the risk models used by the banks and as an extension to calculate the reserves that the banks need to keep. For all these uses it is imperative that the data used is of good quality and errorless. Furthermore, the use of the system-to-system transfer of data is more efficient than having people enter the information into the system and less prone to human error.

Aside from the differences between the banks, there is also a difference in the wishes of the different departments within the banks when it comes to SBR Jaarrekening. There are the sales managers that wish to make the customer journey as easy as possible, thus not burdening the customer with providing a large/specific data set. Then there are the lending specialists and the risk managers that have to decide whether or not a loan is provided. They need the data that comes in to be of a certain minimum quality and completeness depending on the specific circumstances, whilst also being certain that the information is send by the correct person. Additionally, they tend to be the department that has the largest number of financial reports that have to entered into the banks internal system. Some of the lending specialists use this retyping to become acquainted with the data they have to base their decisions on. Thus, their incentive to use SBR Jaarrekening will also be based whether or not the internal process only allows for the digitalisation or if the decision-making process based on the data will be automated. Lastly, there is the technical department that has to implement the standard within the internal systems of the banks.

### Influence

The banks have the largest influence on the development and adoption of SBR Jaarrekening. As described in Section 4.1.1, SBR Nexus is part of the FRC of which the banks are the members. Furthermore besides being the owners of SBR Nexus, they are also the main customers of the information chain that SBR Nexus builds. Consequently, they have a high degree of influence on the process and what makes it into the taxonomy and what does not. If the taxonomy does not align with the needs of the banks in terms of information, then the account managers will generally contact the business or the account for more information which renders the SBR solution ineffective.

Secondly, most of the other major stakeholders, such as the businesses and accountants, are directly or indirectly dependent on the banks. The businesses are directly influenced by banks as the terms of their loans can include that the required data should be delivered through SBR Jaarrekening. However, the actual influence they have depends on their willingness to enforce these terms when the financial statements are delivered through other means. This means that they are also indirectly able to force accountants and other intermediaries to follow this method of information delivery. Therefore, the banks as a stakeholder have blocking power in the development, if they do not implement it then it is unlikely that the rest of the chain will.

Thirdly, the banks determine with their internal prioritisation how fast the SBR Jaarrekening and the latest taxonomy are ready on their side and thus when the other parties in the chain can use the system. Here internal events and organisational forms can have a large impact on the momentum the implementation has. For example one of the banks was working on restructuring their own organisational form at the same time as the transition from BT to FT. As a consequence they did not afford any priority or urgency to implementing SBR Jaarrekening, which has a big impact on the overall success of the SBR Jaarrekening adoption. Although it should be noted that there have been agreements for the last couple of years to finish the implementation by the 1st of February.

### 4.2.3 Accountants

The accountant is one type of intermediary that a business can go to if their financial statement has to be composed or checked. As a result accountants are connected to the chain due to their relationship with the businesses they serve, see Figure 4.2. However, the accountancy market is a large and diverse market. Different specific market segments have different accountancy firms holding the largest market share (Rougoor, Verheuvel, & Belt, 2020). While there are a couple of larger firms that are seen as the large firms, such as but not limited to BDO or Deloitte, they do not have a majority market share in the accountancy market. In total there were around 30,000 accounts/administrator/tax expert firms active in the Netherlands (cbs, 2022), of which around 1% are accountancy firms (Rougoor et al., 2020).

Within the group of accountants a difference can be made based on the work that they perform. In essence there are two main types of accountants; those who compose the financial statement (*samenstelpraktijk*) and those that audit the financial statements made by their clients (*controlepraktijk*). For most small businesses the accountant composes the financial statement and sends it to the relevant bank. Here the information chain SBR Jaarrekening would only have to be incorporated into the working process of the composing account. The second type are the auditor accountants who do not compose the financial statements of their clients instead they audit their financial statements, this is generally the case for medium to larger companies. However, this does mean that the company decides the format in which they will deliver the financial statements to the accountant which could be Word, Excel or PDF (SBR Nexus, 2022a). This makes it more time consuming and inefficient for the accountant to use SBR Jaarrekening as they would have change the received format to the XBRL format required by SBR Jaarrekening.

Lastly, a third type of distinction can be made in the stakeholder group of accountants and that is based on their enthusiasm for SBR Jaarrekening. There is a group of accountants that has embraced the SBR Jaarrekening information chain and has included it into their working process. While another group is reluctant/hesitant, as

they do not see a clear business case/benefit for them to be using this information chain. Additionally, there is a group of accountants that is still fully unaware of the possibility of using SBR Jaarrekening.

### Influence

As the use of SBR Jaarrekening is currently not fully enforced by most of the banks, accountants have a significant amount of influence on its adoption. For example, in the case where the use of SBR Jaarrekening has been 'mandated' by one of the banks for their revision clients, the accountant can avoid this by charging their client extra. It is likely that when a client gets charged extra by their accountant that they will complain about this with their bank, which in most cases results in the client still being allowed to deliver their financial statement in PDF form instead of through SBR Jaarrekening. Additionally, accountants act on behalf of the businesses they have as clients when it comes to delivering financial statements. Therefore, they have a facilitating power within the information chain.

When it comes to the development of the taxonomy and SBR Jaarrekening as a whole it depends a bit on the accountant. There is a consultation with SBR Nexus that includes the accountants, where the goal is to have a mix of accountants in terms of auditing and composing and different sizes of accountancy firms. However, a large number of the accountants will not be directly involved in setting the direction of the development, because it is simply impractical to have all  $\sim 300$  firms join the discussion. This can be somewhat overcome by inviting their professional associations to the table. Furthermore, not all accountancy firms are interested in joining the consultation. On one hand the reasoning for not joining could be that they do not see a business case and are therefore not interested. On the other hand they may have already implemented SBR Jaarrekening and do not wish to become more involved.

## 4.2.4 Software suppliers

Software suppliers build the accountancy software that enables accountants to draft the financial statements. For accountants to be able draft a financial statement in XBRL they have to have access to software that includes the taxonomy or FT. Additionally, if the software supplier is connected to SBR Nexus it can also be used to send the information to banks using their software. However, not all software suppliers provide both options, some software packages can be used to draft financial statements while others can be used to send the information to the banks. In case the software solution does not have option to send information to the banks, the MDMB platform can be used to send the XBRL file.

However, the implementation of SBR Jaarrekening and specifically the FT takes resources of the software supplier. Thus, there needs to be a clear business case for a software supplier to continuously incorporate the latest version of the taxonomy. Currently, there are no formal agreements with software suppliers, this means that the implementation of SBR Jaarrekening is based upon demand. However, as demand remains limited, this means that there is also a limited or no business case for software suppliers to implement the SBR Jaarrekening and its taxonomies. Yet the main accountancy software suppliers are connected, because even though currently there is not a large business case they expect this will come. For the software suppliers SBR Jaarrekening becomes more interesting once there is a higher volume of financial reports that gets send with SBR Jaarrekening.

### Influence

Software suppliers have a large influence on how easy it is for the rest of the chain to implement SBR Jaarrekening. If SBR Jaarrekening and the accompanying taxonomy are integrated in such a way that using SBR Jaarrekening becomes the push of a button, then some of the hurdles for accountants will be removed. Thus, software suppliers have a facilitating power within the chain (Bharosa et al., 2018). However, if major software suppliers refuse to implement SBR Jaarrekening they will likely cause more resistance among the accountant stakeholder group to use SBR Jaarrekening. Furthermore, they have a high degree of influence on when the taxonomies will become available as they decide the priority that the FT gets after the new NT is implemented.

## 4.2.5 SBR Nexus

SBR Nexus is the stakeholder that is responsible for the technical infrastructure behind the information chain and the standardisation of the financial reports in a XBRL format. This includes the development of the taxonomy. Furthermore, they support the new parties that wish to connect with the infrastructure needed for SBR Jaarrekening and the implementation of SBR Jaarrekening in their system. Their specific role will be discussed in Section 4.4.

### Influence

While SBR Nexus is responsible for the infrastructure behind the information chains, they only have limited power to influence the other stakeholders. Currently, SBR Nexus only has formal contracts with the banks as they are both the owners of SBR Nexus as well as SBR Nexus' main customers (see Figure 4.2). The other stakeholders involved in the chain can only be influenced in an informal manner, for example by persuading the accountants or intermediaries that SBR Jaarrekening will be the future standard for communication with the banks. However, they cannot force the other stakeholders to adopt SBR Jaarrekening. Therefore, the power SBR Nexus has within this stakeholder system is limited.

### 4.2.6 Other stakeholders

#### Visma

They are the company that on behalf of SBR Nexus makes the technical version of the taxonomy, such that it can be implemented by the other parties within the chain.

#### Regulator (e.g. Dutch central bank)

The regulator, e.g. the central bank, requires banks to report on the loans they issue to businesses. Monitoring the different banks will become easier when they all use the same standard format of reports and thus use similar definitions for data that is used in their risk models. Furthermore, they determine how much the banks have to keep in reserves to secure against poor loans (SBR Nexus, 2022c). However, they have no direct interest in the development of SBR Jaarrekening.

#### Other banks

As mentioned above, there are more banks in the Netherlands than just the three largest banks. The other banks will be affected by the development of the SBR Jaarrekening. Firstly, because when the SBR solution gets fully adopted by the clients of the three largest banks, this theoretically means that these banks will have a better competitive position due to increased accuracy of their risk models. The other banks could decide to join SBR Jaarrekening, however at the moment they are not involved with the SBR information chain nor do they use it. They will have less influence on the direction of development than the original three banks, should they join.

#### Alternative finaciers

Aside from banks there are also alternative financiers that can provide businesses with loans who will be affected by the development of SBR Nexus. Similar to the other banks, there is the opportunity for these financiers to connect with the SBR Nexus platform. Their advantage would be receiving their clients' data in a more standardised manner. However, like banks that were not part of the initial FRC they will have less influence on the development direction that SBR Nexus takes with the taxonomy and infrastructure. On the other hand they are important for increasing the appeal of SBR Jaarrekening as the market standard.

#### Professional associations accountants

Accountants have a number of different professional associations within the Netherlands, namely the *Konin-klijke Nederlandse Beroepsorganisatie van Accountants* (NBA) (professional register), SRA (represents 375 accountancy firms) (SRA, n.d.), and *Nederlandse Orde van Administratie- en Belastingdeskundigen* (NOAB) (represents 1000 administrator and tax expert firms) (NOAB, n.d.). These organisations have an interesting position as stakeholders in the development and adoption of SBR Jaarrekening. They can (and have been) invited to represent the large number of accountancy firms. As such they have an informing role towards SBR Nexus when it comes to communicating the concerns accountants have with regard to SBR Jaarrekening and the taxonomy that is behind it. On the other hand the events from these professional associations provide an

opportunity for SBR Nexus to reach a larger group of accountants and inform about the development with SBR Jaarrekening.

These associations have a reasonable amount of power as a stakeholder, since they are a connection for SBR Nexus with a broader group of accountants. Thus, by allowing or disallowing SBR Nexus to attend events they can help or hinder the reach of information. Furthermore as professional associations representing accountants, they have more influence when they express concerns with respect to specific parts of the developments.

### Branch organisations

Another stakeholder that SBR Nexus is in contact with are the branch organisation within the Netherlands. For them SBR Jaarrekening could become interesting if this allows for the aggregation of financial data within a branch and thus provide benchmark information to the companies within their branch. This is quite similar to how the statics bureaus attempt to get businesses to supply them with data by giving them benchmark information about their sector (Buiten et al., 2018).

# 4.3 Stakeholder involvement

First it should be noted that the main stakeholder groups during the development of SBR Jaarrekening and the FT have not changed. However, the individuals behind those stakeholder groups did change because of the duration of the development. For instance, people moved on to other roles within their organisations or gone to different organisations. Interviewees noted that these changes have had a significant impact on the development of SBR Jaarrekening and the taxonomy. Firstly, due to their replacements having to become acquainted with the state of SBR Jaarrekening. Secondly, and more importantly, because it could change the urgency and priority stakeholders gave to the development. People only have a fixed amount of time, the development of the taxonomy was improved when it received higher priority during its development. Additionally, the quality of the feedback is dependent on the knowledge the person has of both the financial statements usage within the bank and about the XBRL technology behind.

Aside from the changes on an individual level, there have been changes in how the stakeholders have been involved. As mentioned, the involvement of any party besides the banks was almost non-existent before the change from SBR Banken to SBR Nexus. However, this resulted in a taxonomy that gave accountants a near impossible task when they wished to deliver data using the BT. As a result there was resistance against the SBR solution from the accountants and their professional organisations as summarised by the SRA in a letter to the overall SBR organisation. Their main points of complaint were the numerous data points, questions with regards to who owns the data, and what mandate the banks had to require this much data (Dinkgreve, Tsang, & Zweekhorst, 2017).

During the period of interest for this research, after the BT was changed to the FT, a work group was established by SBR Nexus. The aim of this work group was to give the accountant, software supplier, and the banks a chance to give their input on the development of the taxonomy for SBR Jaarrekening. This was part of the reason for the change in name from SBR Banken to SBR Nexus to show the commitment to changing the approach whereby now almost all major stakeholder are involved in the development.

In this work group it is impossible to have all the accountants present. Thus, a choice has been made to invite a smaller number that ideally should be representative of the larger accountancy market. The group consists of both accounts that are specialised in composing financial statements and those that are auditors of them. Furthermore, there is a mix of smaller and larger firms present. However, all accountants participate on a voluntary basis, so there will be a selection bias towards accountants that for one reason or another have an interest in helping the development of SBR Jaarrekening. Therefore, accountancy firms that are hesitant or resistant to SBR Jaarrekening are unlikely to become involved. A recent development within SBR Nexus has been to have a dedicated person contact accountants to inquire about their experience (or lack thereof) with SBR Jaarrekening, this could help getting into contact with accountants that are more hesitant.

However, within the work group not all stakeholders feel like their input is fully taken into account. During the interview, held by the author, one of the accountants described the work group meeting as following:

"It is more informing, I do not feel that people are listening." (Interviewed accountant, translated from Dutch).

When it comes to involvement in the process, the interviewed accountant would like to see more collaboration such that the different parties understand each other's work processes and reasons behind the request for certain data. In general they indicated that a better overall understanding of the others' positions should be strived towards. Interestingly, the banks also indicate that they wish to have a better understanding of why it seems to them that the accountants have trouble with implementing SBR Jaarrekening.

Additionally, for the software suppliers and banks, it can be challenging to get the correct people involved. It has happened that the people involved agreed with the chosen direction, only to have the decision challenged internally at one of the parties, because the person at the table did not have the mandate to make that decision and could not convince the person making the decision.

Lastly, the business owner who with their request for a loan is at the centre of the chain is not involved in the development of the SBR Jaarrekening or the taxonomy.

# 4.4 Stakeholder roles

Within the development the involved stakeholders have different roles, which according to the interviewed stakeholders have changed little since the taxonomy was changed to the FT. How the different stakeholders perceive their roles and what their expectations are for the roles of the stakeholders differs quite a bit (see Table 4.1). Here the expectation means what role the stakeholders would want a stakeholder to have. Whilst the role means the role that stakeholders currently observe that the stakeholders have.

Within the information chain it is unclear who has the role of data creator, since it is the business owner who has to supply their information to the bank for the loan or revision of their loan. Yet in most cases, it is the accountant who composes the financial statement and sends it to the bank. Therefore, it is the accountant that creates the data set that the bank is interested in from the data they receive. This is one of the areas an agreement framework needs to be set up to determine who is the owner of the data and who is seen as the creator. Most stakeholders within the chain see the accountant as the creator of the data.

The role of the software supplier is one that most of the stakeholder can agree upon, which is that they should be the implementer of the taxonomy in their accountancy software. However, upon how far their role stretches beyond simply implementing the taxonomy is where the expectations differ mostly between the accountant and the software supplier. Currently, the software supplier feels like they have a communicator role between the accountant and SBR Nexus. In that they are the recipient of complaints from the accountant that should go to SBR Nexus and not them. Whilst the accountant would prefer the software supplier to be the communicator between them and SBR Nexus, since the software supplier is their first point of contact in case something is not working. The accountants reasoning for this is that the software supplier will receive the user feedback, due to their position in the chain, which can be aggregated and used to improve the next iteration of the FT.

With respect to the accountant all stakeholders agree that they are the data creator. However, the banks also expect the accountants to take an implementer role and incorporate SBR Jaarrekening into their working process. The interviewed accountants did not see this as their current role nor expectation, however this may be the consequence of these specific accountants having implemented SBR Jaarrekening into their system with their software supplier. Therefore, this is likely the result of selection bias towards accountants who have embraced SBR Jaarrekening. Another role for accountants that not all stakeholders agree upon is the expert role. This role pertains translating available knowledge in such a way that all other stakeholders can understand. For the accountants this would mean informing other stakeholders what is possible within their working process and what are the regulatory boundaries available. Here SBR Nexus holds the opinion that the accountant already has the expert role, whilst the accountants do not fully agree. The account sufficiently. Furthermore, the banks indicated that they think they themselves have enough knowledge about the financial data, although they did say that more understanding between the parties is required with respect to their working processes.

When it comes to the stakeholder group banks there are more differences between the roles and the expectations. One thing that all the stakeholders agree upon is that the banks are the data users in the information chain. Another role that the banks noted they have is the sponsor role, they finance the development and existence of SBR Nexus, as will be discussed in Section 4.5. However, in addition to these two roles there are a number of expectations for the banks from the different stakeholders and they do not all agree. The first expectation is the role of motor, with which is meant that they have to incentivise the rest of the chain to adopt SBR Jaarrekening, given that they have the mandate within the chain to force the other parties to adopt it. While the majority of the stakeholders agree that the banks should have this role, it is currently only partially present according to the interviewed stakeholders. Only one of the banks is mandating for a part of their revision clients that they use SBR Jaarrekening. The second expectation is assessor, with which is meant that they assess what in terms of information is needed within the process such that they can use the XBRL financial statements that arrive. This includes checking with their own internal organisations what they require.

Similar to the stakeholder banks, the expectations and roles attributed to SBR Nexus do not necessarily align between the stakeholders. The one role most stakeholders agree upon is that they should have the role of mediator, defined as the impartial managers that are tasked with building consensus between the parties and working on the collaboration dynamics (Emerson & Nabatchi, 2015). While most parties find that they expect this from SBR Nexus and it is described as a role they have, it should be noted that the accountant did say in the interview that they found that the effectiveness with which SBR Nexus held this role varied. There is a desire for this role to be applied more consistently. The same applies for the convener role, which entails bringing the required parties to the table and ensuring they meet in a manner conductive to collaboration (Emerson & Nabatchi, 2015). However, the banks expect more from SBR Nexus. One is that the SBR process side of the banks expects that they produce the required infrastructure for the information chain, which is a role where SBR Nexus meets expectation. Additionally, they also expect SBR Nexus to activate the other parties in the chain to use SBR Nexus to be the initiator that has the vision for the development. This is an expectation that SBR Nexus disagrees with, as they hold the position that the stakeholders that have the largest mandate should determine the direction of development which are the banks.

As can be seen in Table 4.1, there are a number of roles were the stakeholders are in agreement and the expectations for these stakeholder roles are met. However, there are also a number of roles where the chain is in agreement that they should be taken up by a certain stakeholder yet they are currently not. The last category are the roles where there is disagreement among the stakeholders who has to be responsible. One is the activator/motor role between SBR Nexus and the banks. Here the banks expect SBR Nexus to take more of a role in activating the stakeholders to use the information chain, whilst also agreeing with SBR Nexus that they should use their mandate to get the other stakeholders to use the information chain. These last two categories of roles would have to be clearly divided to take away ambiguity and turn from expectation to role.

Tab. 4.1. An overview containing the expectations with respect to roles stakeholders have for themselves and other stakeholders. Additionally, the stakeholder roles that are currently observed by the interviewed stakeholders. On each horizontal line the expectations and roles attributed to that particular stakeholder are shown.

		SBR Nexus	Bank (account man-	Bank (SBR Process	Accountant	Software supplier
			ager)	side)		
SBR Nexus	Expectation	Convener	Convener	Convener	Convener	Convener
		Mediator	Mediator		<ul> <li>Mediator</li> </ul>	Mediator
			Activator	Producer		
				• Initiator		
		Convener	Convener	Convener	Convener	Convener
	Role	Mediator	Mediator		<ul> <li>Mediator</li> </ul>	
				• Producer		
		Data User	Data User	• Data User	Data User	Data User
		• Assessor	• Assessor	• Assessor	<ul> <li>Assessor</li> </ul>	• Assessor
Banks	Expectation	Motor	• Motor	• Motor	• Motor	
				Communicator	<ul> <li>Implementer</li> </ul>	
				Sponsor		
	Role	Data User	• Data User	• Data User	Data User	Data User
				Sponsor		
Accountant		Data creator	Data creator	Data creator	Data creator	Data creator
	Expectation	• Implementer	• Implementer	• Implementer		
		• Expert			• Expert	
	Role	Data creator	Data creator	Data creator	Data creator	Data creator
		• Expert				
Software Supplier		• Implementer	• Implementer	• Implementer	Implementer	• Implementer
	Expectation				<ul> <li>Communicator</li> </ul>	
			• Supporter			
	Polo	• Implementer	• Implementer	• Implementer	<ul> <li>Implementer</li> </ul>	• Implementer
						Communicator
Business owner	Role	Data Creator	• None	• None	• None	• None

# 4.5 Agreement framework

Within the information chain of SBR Jaarrekening there are a few formalised contractual agreements (see Figure 4.2), most of those existed before the development of SBR Jaarrekening. These are the agreements between the software supplier and the accountant, where the software supplier is tasked with supplying the accountant with their required accountancy software. Secondly, there is the business who hires an accountant to prepare their financial data in a manner that they need for the bank. Lastly, there is the contract between the bank and the business once the business has acquired a loan from them up until that point there are no formal agreements between them.

The development of SBR Jaarrekening has also given rise to a contractual agreement between the banks and SBR Nexus. As discussed in Section 4.1.1, SBR Nexus is part of the reporting cooperative set up by the banks, as such they have a contractual obligation towards the banks. In the initial statutes for the FRC the goal of the cooperative was formalised as development of the taxonomies, process definitions and infrastructure by SBR Banken as a program from the banks, where the banks would be responsible for the cost and staff. These statutes were revised in 2018 with the formation of SBR Nexus, the goal was amended to maintaining and developing the taxonomy and providing the members of the cooperative in their requirements. The members of the FRC remained responsible for the cost of SBR Nexus.

However, there is no common vision or set of requirements that the three banks agree upon. As such there is no common line in the approach between the three banks. This is partially the result of the difference in the way the banks are internally organised and how they have developed the risk models that are fed with information acquired through the process. Additionally as pointed out by one of the interviewees of one of the banks, there is a fundamental difference in the way the banks look at the whole process. Namely, if the goal of structured data delivery is for the purpose of digitalisation or automatisation. Furthermore, there are no clear agreements about the role of the banks which could explain the difference between the expectations for the roles and the roles themselves, especially when it comes to the responsibility of setting the vision for the development.

Additionally, within the formal contracts between the business owners (clients) and the banks only recently one of the banks started to use their mandate to obligate a part of their clients to supply their financial data through SBR Jaarrekening using the FT for it to be accepted. For the other clients this is not part of the agreement and therefore voluntary. However, all the banks have started requesting that SBR be used in the letters they send their clients. Thus, requesting that their clients use the standard set out in the FT. This leads to the next obstacle, which is that most business owners pass the letter from their banks onto their accountants. While the accountant may have contact with the bank, they do not have any formal contract with the bank. However, they are expected to send the financial data in a specific format of SBR Jaarrekening. There are three different versions for different types of businesses depending on the level of data required by the banks. Yet only one of the banks states in the letter which version they wish to receive, whilst the others assume that the accountant knows this even though there is no formal agreement. Resulting in a large number of data sets that get rejected. However, even if the bank clearly states in their agreement with the business owner which version they wish to receive this may still cause frustration at the accountants side when it does not match the chamber of commerce scaling that the accountant is used to.

SBR Nexus also does not have direct agreements with the business owners who send their data via SBR through an accountant. For them SBR Nexus is a sub-processor of the banks at which they have a loan, any agreements therefore are still between the bank and the business owner. SBR Nexus does not have access to the data itself, they can only see that a file has been send and which data points of the taxonomy have been used. However, they cannot see what data has been filled out. In addition, SBR Nexus does not have responsibility for what happens to the data before it gets send through SBR Jaarrekening in case the software supplier causes a data leak or otherwise causes problems.

For the development of the taxonomy there is a schedule with agreements for the different steps of the development, which results in an alpha, beta, and definitive version. Here the aim is that the different stakeholders spot problems before the definitive version. However depending on the person responsible, this is done more or less thoroughly, as discussed in Section 4.3, resulting in problems that are spotted when the definitive version goes live. Meaning that adjustments have to wait until the next taxonomy. However, there are no agreements on who within the different stakeholder groups should do these checks. For the implementation of the new version of the FT there is the expectation that the definitive version can go live on the first of February. Yet, there are no formal agreements with the software suppliers on when they should have the new version of the FT ready. Although it improves their business case if they have the new version ready before accountants start making financial statements for the public information chains.

The remaining agreements are informal. SBR Nexus can only entice software suppliers and accountants to participate by giving them reasons why it is beneficial for them. They have to be given a business case, however no formal business case can be agreed upon in the current framework of agreements for this chain.

# 4.6 Conclusion

Within the agreement framework a structure of governance is conspicuously absent. As described above, some of the roles have been taken up and are in agreement between all the stakeholders. It is the roles that pertain to the decision making and the vision that have the most confusion about them. In general the party with the largest amount of influence, the banks, themselves do not seem to have a clear common direction among them. As a result the urgency and direction with respect to SBR Jaarrekening differs for the three banks and is also dependent on whoever happens to be in the position deciding on SBR related matters. In conclusion, an agreement framework needs to include a governance structure that addresses the different roles the stakeholders should have within the development. Additionally, boundary rules (Ostrom, 1986) should be included such that there is an agreement in place when individual representatives changes that their replacement will have the same level of mandate within the organisation. Furthermore, there should be controls to enforce these agreements, so that the agreement framework no longer only contains the standards and how to use them.

Secondly, as the requirements for the banks internally are unclear this translates to the entire chain. Leaving the other parties to wonder why SBR Jaarrekening should be used or why a specific version has to be used. Certainly, as the other parties currently do not have a clear business case for the implementation of SBR Jaarrekening. The clearest identifiable business case is located at the side of the banks, whilst the clearest identifiable costs are located with the other parties. Changing to and implementing SBR Jaarrekening is costly for the software supplier and accountant, and they will only see the benefit when the information chain becomes more widely adopted. As for the business owner their benefit is the most difficult to see, as their benefit would come in the form of a lower interest rate due to the banks having lower costs due to improved data quality. However, the breakdown of the loan costs is not detailed enough that the cost for lower quality data is immediately visible. In addition, this is highly dependent on how well the banks implement SBR Jaarrekening into their own internal system.

# **Chapter 5**

# **Case study: SBR Taxatierapport**

## 5.1 Background

Where SBR Jaarrekening is its own product, SBR Taxatierapport is part of a larger sectorial approach to the real estate sector. Currently, this sectorial approach is focused on commercial real estate. The first step was to standardise the data exchange, which was done with the VT. SBR Taxatierapport is one of the products that uses the VT. The aim of SBR Taxatierapport is to send the valuation data in a structured form from the valuer to the bank. The program was started in 2016 and can be considered a technology push from the banks to the market. It should be noted that prior to the development of SBR Taxatierapport some of the banks already had a specific portal or specific criteria for the manner in which valuation information should be delivered. However, these were different for the different banks. Additionally, some of the banks have a set list of valuers that they allowed to do the valuations to guarantee the quality of the valuations.

### 5.2 Stakeholder categories

Within this information chain there are four major stakeholders, namely SBR Nexus, the banks, the valuers, and the software suppliers. In Figure 5.1 it can be seen that all main stakeholders have some form relationship with each other, either a formal contractual relationship or an informal one. Additionally, there are stakeholders that are affected by the information chain but are not directly involved.



Fig. 5.1. Overview of the relationships between the different stakeholder groups for SBR Taxatierapport both contractual and informal.

# 5.2.1 Banks

Banks here means the three banks that are involved in the FRC (see Section 4.1.1). As mentioned, the banks started the development of SBR Taxatierapport and the VT. They used the *Nederlands Register Vastgoed Tax-ateurs* (NRVT) guidelines as the basis for the model, which was supplemented with the data standard used by the main valuation software supplier. They added to this basis the data points they needed for their internal processes that could not be found in the guidelines or existing data standard. Similar to the SBR Jaarrekening case, the three banks consider different data points important in the data set they wish to receive. However unlike SBR Jaarrekening, the use of SBR Taxatierapport within the banks is less scattered, thus making it easier to acquire the requirements for the systems. The main stakeholder within the banks is the real estate department. This is not to say that the information is not used in other processes, but the main process is within one department.

The banks benefit from the development of SBR Taxatierapport as the valuation reports they receive have a standard format through system-to-system interaction, thus reducing the potential for human errors. Although the banks are not in agreement as to whether the purpose should be digitisation of the process or automatisation. Furthermore, by developing a taxonomy that sets the definitions for the different entry points within the data set it is easier to guarantee the quality of the data, thus potentially allowing for more valuers to deliver valuation reports to the banks. Currently, as mentioned, some of the banks work with preferred valuers that are allowed to provide valuation reports to the bank as a manner to ensure a minimum level of data quality. However, the introduction of a standard set of data entry points with set definitions is intended to improve the comparability of valuation reports.

### Influence

Again the banks have the largest influence on the development of SBR Taxatierapport, similar to the case SBR Jaarrekening. This is partially due to them being the owners of SBR Nexus, see Section 4.1.1, and thus having a major say in the direction SBR Nexus takes. Additionally, the valuer is dependent on the bank for a commission. It is the bank that gives instructions for valuations that the valuers can accept or decline. This means that the banks can make, and one has made, it mandatory to use the VT for delivering data. Therefore, the banks have a blocking power in this chain with the position they have.

## 5.2.2 Valuers

Valuers are the ones that make the valuation reports. This can be on behalf of a (future) property owner or the banks. In the case of SBR Taxatierapport it is the bank that commissions a valuation report on the property of one of their clients, that said client has a loan for. Furthermore, as mentioned the VT is currently focused on commercial real estate as such only commercial real estate valuers are of interest in this case. The number of valuations firms in the Netherlands is significantly lower than the number of accountancy firms. Additionally, the top 10 valuation firms have a market share larger than 95% (FRC, 2017). This means that it is easier to involve a large part of the valuers by inviting representatives from the main firms.

However, digitalisation and standardisation represent a new way of working for this sector. One of the main points of differentiation for valuers was their calculation models with which they determine the value of a property. The standardisation effort with SBR Taxatierapport removes this differentiation as the calculation model becomes included in the software solution. Another point that the valuer used as differentiation was the manner in which they presented the information about a property in their report, this also disappears with the use of SBR Taxatierapport. Thus, the standardisation that the VT represents makes a part of the valuers concerned about the value of their profession as commercial real estate valuers.

### Influence

The influence that valuers have is very limited at the moment as a result of them being dependent on the banks for commissions and some banks currently keeping a limited list of valuers that can do valuations for them. However, the valuers are part of the expert group, which gives them an opportunity to direct the development by giving feedback on what is working and what is not.

However, all the other major stakeholders pointed out that they should have more influence. Certainly, on determining what is needed to create a valuation report within SBR Taxatierapport that will meet the valuers professional guidelines. At the moment it is mostly the banks that determine what should be included in the valuations and what not, while the expertise is located with the valuers.

## 5.2.3 Software suppliers

This stakeholder group is diverse in terms of how they interact with SBR Taxatierapport and which groups of valuers use them. For example, larger valuer firms tend to use international valuation software which is not connected with SBR Taxatierapport. Within the market for Dutch valuation software a distinction can be made between the main software supplier and the other software suppliers based on their involvement in the development.

The main software supplier is the software supplier that has been involved continuously since the start of SBR Taxatierapport, while other software suppliers got involved more recently. This does mean that the main software supplier essentially set the standard for the other software suppliers. However, the main software supplier has a head start in development which meant that they kept raising the bar that other software suppliers had to meet. This was resolved by decoupling the requirements from the main software supplier. The requirements for the joining software suppliers became that they should be able to deliver a certain set of data fields and the valuation outcome should be the same based on similar input to current method of valuation.

### Influence

The influence of the main software supplier at the start of the development was high. Together with the NRVT guidelines their data standard was used as the starting point for the VT. However, the other software suppliers have had little influence on the development of either the taxonomy or the infrastructure behind SBR Taxatier-apport. They get a set number of requirements that they will have to meet before they can connect.

The software suppliers do have an influence on how user friendly SBR Taxatierapport is for the valuers, which is especially important in a chain where one of the main stakeholder, the valuer, has to get used to a new, more digital, way of working. A software supplier can take away hurdles for the valuers by making their software easy to use. Additionally, it is the software suppliers that determine when the valuers have access to the new version of the VT, since they have to give resources to its implementation.

## 5.2.4 SBR Nexus

Similar to SBR Jaarrekening it is SBR Nexus that provides and maintains the infrastructure which allows the different stakeholders to send the information through SBR Taxatierapport and they develop the taxonomy. Furthermore, SBR Nexus is responsible for organising the expert group and work group that brings together the different stakeholders to determine the direction of the development of the VT and SBR Taxatierapport.

### Influence

SBR Nexus has a reasonable amount of influence on the direction of the development of both SBR Taxatierapport and the VT. However, they are dependent of the feedback given by the other stakeholders in the chain, this is a consequence of SBR Nexus not having detailed market knowledge. Therefore they need the other stakeholders to determine what definitions should be included and whether supplying certain types of data is feasible for the valuers.

However, SBR Nexus is an organisation set up by the three banks organised within the FRC (see Section 4.1.1). While SBR Nexus has more ownership over the SBR products than when it was still SBR Banken, it still has to conform to the goals set out by the FRC. Which is to developed a market standard for digital data exchange of valuation reports with their infrastructure and taxonomy.

# 5.2.5 Other stakeholders

### **Professional associations**

The valuers have two main professional associations, namely the *Nederlandse Coöperatieve Vereniging van Makelaars en Taxateurs* (NVM) and the NRVT. The NVM has acquired the main software supplier that has been involved from the start. Therefore, the NVM has an influence on the process of development of SBR Taxatierapport. They have the influence as described above due to being one of the main software suppliers in the valuation market. In addition, by being one of the main associations for valuers they provide an opportunity to inform valuers about the existence of SBR Taxatierapport and how to use it in combination with the software they provide.

On the other hand, NRVT is the registry for valuers that has been established in 2014 to set rules and requirements that the valuers have to meet (NRVT, 2015). While they have been invited to participate in the discussions around SBR Taxatierapport and to take on a more leading role in the development of the VT, they so far have not been interested or do not have the capacity to become involved.

### Property owners

Essentially there are two reasons (potential) property owners have to interact with this information chain. One is when they wish to receive financing for the property and the other is when they have to give an accountability report of the property which is collateral for their loan. In both cases the information is given to the bank as part of the loan agreement, although it is the bank that will commission the valuation. In this chain the property owner has no influence on the development, since they only indirectly use the SBR Taxatierapport.

### Regulator

Banks have to meet the requirements set by the regulator, the Dutch central bank (DNB). This means that the regulator can force banks to improve the quality of data for their risk models or that they have to ask for certain types of data. Therefore, the DNB has a large influence on the direction of development of SBR Taxatierapport, but they have no direct interest in SBR Taxatierapport. For them it does not matter how the banks acquire the required data as long as it complies with the regulations.

# 5.3 Stakeholder involvement

During the initial phase of development in 2016, the stakeholder involvement was set up in the form of a work group and an expert group as part of the FRC (FRC, 2016). In the work group SBR Banken, FRC and the main software supplier were involved in the development of the infrastructure and taxonomy, while the valuers were invited to the expert group meetings<sup>1</sup>. During the expert group meetings the valuers would receive information about the development of SBR for the real estate market and have the opportunity to give feedback. However, after the first couple of expert meetings it was noted by the work group that it was difficult to get valuers to give feedback (FRC, 2018). One of the proposed changes by the work group was to give the valuers certain propositions to react to instead of asking them to simply give their opinion. However, most interviewees agreed that the input valuers give during expert meetings is still limited.

This quarterly expert group meeting is still being held. Although it should be noted that, since SBR Taxatierapport is one of the products that fall under SBR real estate, this meeting also looks at the other products that are being developed as part of the SBR real estate. Currently, five valuers, the three FRC banks and SBR Nexus join this meeting. During the meeting the stakeholders discuss potentially missing data entry fields, validations, and other issues that any of the stakeholders have run into which in their view should be resolved. This feedback is then taken into account for further development by SBR Nexus. The software suppliers are not present during this meeting unless they are specifically invited if their expertise is relevant to the topic. In all other cases the software suppliers are later consulted about the practicality of new developments stemming from the expert meeting to ensure that it is technically feasible for them to implement this.

<sup>&</sup>lt;sup>1</sup>The documents in SBR Nexus' archive include minutes of the work group meetings. These minutes discuss the expert group meetings and their takeaway points.

Initially multiple software suppliers were involved in the development process, however this resulted in a lot of work for the banks with respect to checking that the mapping and test reports were correct. The banks deemed it unmanageable. This compounded by the fact that what went well with one software supplier went wrong for another and vice versa. Eventually, the choice was made to continue with the software supplier that was the furthest along. However, this does increase the risk of monopoly formation as it is only relatively recently that other software suppliers are being connected as well. Currently, one other software supplier is connected, whilst a handful others wish to be connected.

# 5.4 Stakeholder roles

The stakeholders have different roles within the development, which have changed little according to the interviewed stakeholders. Table 5.1 shows the role stakeholders perceive themselves to have and what role they perceive other stakeholders have. Additionally, there is an overview of the expectations that stakeholders have for the roles.

The first thing to note is that while stakeholders do not necessarily agree on the type of role different stakeholders have, in most cases the roles do meet the expectations. Thus, there seems to be a mismatch in how different stakeholders look at the division of roles. Although this could also be explained by what was top of mind when the different stakeholders were interviewed.

**Tab. 5.1.** An overview containing the expectations with respect to roles stakeholders have for themselves and other stakeholders in the SBR Taxatierapport case. Additionally, the stakeholder roles that are currently observed by the interviewed stakeholders. On each horizontal line the expectations and roles attributed to that particular stakeholder are shown

		SBR Nexus	Banks	Valuer	Software supplier
SBR Nexus	Expectation	Mediator	<ul><li>Convener</li><li>Producer</li></ul>	• Convener	<ul><li>Convener</li><li>Producer</li><li>Expert</li></ul>
	Role	Mediator	• Producer	• Convener	Convener     Producer
Banks	Expectation	<ul><li> Data user</li><li> Developer</li><li> Initiator</li></ul>	<ul><li>Data user</li><li>Developer</li><li>Sponsor</li></ul>	<ul><li>Data user</li><li>Developer</li><li>Initiator</li></ul>	• Data user
	Role	<ul><li> Data user</li><li> Initiator</li></ul>	<ul><li> Data user</li><li> Developer</li><li> Sponsor</li></ul>	<ul><li>Data user</li><li>Developer</li><li>Initiator</li></ul>	• Data user
Valuer	Expectation	<ul><li> Data creator</li><li> Expert</li></ul>	<ul><li>Data creator</li><li>Expert</li><li>Participant</li></ul>	<ul><li>Data creator</li><li>Expert</li></ul>	<ul><li> Data creator</li><li> Expert</li></ul>
	Role	• Data creator	• Data creator	<ul><li> Data creator</li><li> Expert</li></ul>	• Data creator
Software supplier	Expectation	• Facilitator	• Facilitator		<ul><li>Expert</li><li>Communicator</li></ul>
	Role	• Expert	• Facilitator		Communicator

SBR Nexus is attributed a slightly different role or combination of roles by the major stakeholders. They see themselves as the mediator within the chain, meaning the impartial manager of the collaboration dynamics there to build consensus. While the other stakeholders see them more as convener who gets all the right parties to the table. The banks expect SBR Nexus to take up the convener role, however they are not fully convinced that this is always the case. The banks and software supplier agree that the role of producer of the infrastructure and taxonomy belongs to SBR Nexus. The banks' expectation is that this also includes help with the implementation. Lastly, the software supplier would wish to see SBR Nexus have more of an expert role where they have the knowledge with regard to valuations and what needs to be included.

The role that all stakeholder agree upon for the banks is that they are the data users. They are the ones that request the data for use within their systems. Additionally, most stakeholders also attributed the developer role, meaning defining the requirements for the collaboration. Although SBR Nexus finds that this is a role that the banks should take up more. According to the interviewee from SBR Nexus, the banks should have a clearer strategy in terms of what they want for SBR Taxatierapport. The valuer and SBR Nexus see the banks as the initiator of the development of SBR Taxatierapport and still the ones that push the direction of the VT. Lastly, the banks see their own sponsor role in the sense that they pay for SBR Nexus and its associated development costs.

For the valuer all parties agree that they should be the expert that brings the valuation specific knowledge. Yet except the valuers themselves, all the other parties agree that they should take up this role more than they are currently doing. Thus, being more active in giving feedback with regard to whether the taxonomy meets the requirements for valuers. All stakeholders do agree that the valuer is the data creator in this information chain. Lastly, the interviewees representing the banks remarked that they would like to see the valuers become more aware that they are a participant in the information chain and the digitalisation that comes with it.

The last main stakeholder, the software supplier, is where there is a disagreement between stakeholders on their role. Specifically, in how far they should take up the expert role. The software suppliers themselves find that this is a role they should take up, because at least the interviewed software supplier already has experience in digitalising and streamlining parts of the valuation market. Whilst SBR Nexus is of the opinion that the expert role should be with the valuers and that the software supplier should take the role to facilitate the implementation of the information chain. The banks also saw this as the software suppliers role.

Another stakeholder who's role came up often in the interviews was that of the NRVT. With the exception of the valuers all other stakeholders indicated that the NRVT should have a larger role within the development of the VT, given that they set the rules that the valuers have to follow. Depending on the stakeholder asked they would have preferred them to have an initiator role, thus leading the way to standardisation and digitalisation in the valuer's profession, or a facilitator role in the current state of the process. However, as it stands the NRVT does not want to take an active role in the development because, according to the interviewed stakeholders, they fear that only part of the valuers will be able to deliver with XBRL and they do not have the staff to work on the project.

# 5.5 Agreement frameworks

Within this information chain there are a number of formal contractual agreements, some of which existed before the development of SBR Taxatierapport. There is the contract that banks have with property owners with regard to their loan that results in the need for valuations. Then there is the commission from the bank towards the valuer, where they are contracted to do the valuations. Lastly, there is the contract between the valuer and their software supplier.

As stated, there are formal agreements between the banks and the valuers. There are the preferential lists of valuers that could do valuations for certain banks. While the banks were developing the VT, as part of SBR Nexus, the valuers were still hesitant to invest in the needed changes to use the VT. They feared that the banks would each still develop a standard that would render their investments worthless. This was not improved by the banks missing some of the agreed upon implementation dates for parts of the information chain. However, nowadays the banks request SBR Taxatierapport when they give their commission. One of the banks has

mandated its use within their agreements.

Between the banks and SBR Nexus there is the contractual agreement in the form of the statutes, due to SBR Nexus being part of the FRC (see Section 4.1.1). Additionally, there was the proposal for the governance structure for the VT development of which SBR Taxatierapport is part (FRC, 2016), this consisted of a work group and an expert group. The work group is responsible for the development and improvement of the VT and its products, while the expert group is a quarterly meeting with the relevant parties in the market to inform them and receive feedback. Initially, the work group consisted of representatives of the three banks, which at the time staffed SBR Banken. However, quite quickly it was decided that one of the software suppliers should be added to the work group to ensure that there would be software that could connect. However, this does mean that there is the risk of dependency within the system. For example, to take away hurdles for the software supplier a third party was contracted to do the conversion to XBRL, as this was not within the capabilities of the software supplier. Yet, this comes with the risk of dependency on the conversion service.

The initial governance structure in the form of a work group and expert group is still mostly used. Although the SBR Nexus as an entity on its own is part of the work group now and the software suppliers are now only present upon specific invitation. However, currently there is no specific set of agreements showing which stakeholder is expected to have what role. These division are mostly informal and not written down, giving the possibility for confusion or role stretching.

Currently, there are no formal agreements between the software suppliers and the banks or SBR Nexus. Therefore, the implementation of the VT in the software depends on the business case that software suppliers have. This can also lead to a software supplier being unwilling to implement a decision reached by the chain, because it does not fit their current process. One of the interviewees suggested that the entire chain should make agreements about what is in the VT and how the infrastructure works such that once a decision has been reached, by the chain as a whole, that all parties implement it. Thus, when a software supplier says that not all their data points can be included in SBR Taxatierapport there should be a discussion to see if these data points are missing. Should this turn out to be the case then they are added for the entire chain, however if the decision by the chain is that it is not needed then the software supplier should adept.

# 5.6 Conclusion

Again the governance structure is mostly absent in this case. While the development started with a formalised proposal for the governance structure, this was not maintained. As the development of SBR Taxatierapport continued past the initial development phase, the governance structure was not adapted and became more informal. Thus, an agreement framework should contain a governance structure that clarifies the roles for each of the stakeholders and it should set out who can join which meetings. Furthermore, it should contain controls to ensure that the governance structure is adhered to and maintained to reflect the SBR Taxatierapport's state of development. Additionally, it should also set out a manner of decision making that can enforce the choices made by the chain with regard to the content of the VT.

Another point that often came up in the interviews was the presence of knowledge about either valuations or SBR. As discussed above, multiple parties state that SBR Nexus lacks the specific knowledge about valuations that other stakeholders such as the software supplier would expect them to have. SBR Nexus, in the interviews, recognises this is the case, however they expect the valuation specific knowledge to come from the valuers.

Lastly, the representative from the bank pointed out that with the establishment of SBR Nexus a lot of the knowledge about SBR left the banks. Resulting in the banks having relatively limited inhouse knowledge about SBR or the XBRL format behind it. Additionally, it is seen that the people that have knowledge about SBR do not stay, which happens at both management and operational level. Similar to SBR Jaarrekening, the development and implementation is dependent on specific people within the organisation. The bank that is the furthest with implementing SBR Taxatierapport also happens to have a person that championed the initial development of the project. However, this does cause differences in the vision the banks have for the product as well how fast the implementation goes.

# Chapter 6

# **Case study: SBR Huurinformatie**

## 6.1 Background

The development of SBR Huurinformatie, or more precisely the possibility of sharing rental information from property owners to banks, started well before its development with SBR Nexus. Initially, two of the three banks were experimenting with rental information and blockchain technologies. This resulted in talks between the different banks that led to the conclusion that this development was best done in cooperation, since rental information is relevant for all the banks that finance real estate.

This is essentially the development of a new information chain, it fit in with the other tasks that SBR Nexus had. Therefore, it was decided that the development would be done under the umbrella of SBR Nexus. The initial suggestion of blockchain technology was due to its popularity. However, it turned out to be a challenge to get funding for a larger project based on blockchain. Thus, it was decided to start with the development of an information chain that could facilitate the sharing of rental information without attempting to include blockchain technology. The instruction for SBR Nexus was to developed the information chain and infrastructure to share rental information.

SBR Huurinformatie is part of the larger sectorial approach for the real estate sector, as such it is one of the chains that uses the VT. This information chain has two sides to it, due to the differences in property owners. Two different groups of property owners have to be catered to, the ones that have a property management system (PMS) and those that do not, which will be discussed below. However, this means there are two sub-information chains within SBR Huurinformatie. One provides the property owners with a pathway to connect to the banks in a human-to-machine manner in which the human interaction with the system is minimised. The other is an information chain that connects the property owners with a PMS to the banks creating a machine-to-machine connection (see Figure 6.1). Currently, SBR Huurinformatie is focused on commercial real estate.



**Fig. 6.1.** The two different sub-information chains that are part of SBR Huurinformatie. A) The property owner does not have a connected PMS and uses an application provided by SBR Nexus to send their data to the banks. B) The property owner uses a PMS that can directly link to the SBR solution, requiring no human interaction.

# 6.2 Stakeholder categories

Within the information chain of SBR Huurinformatie there are four major stakeholders groups involved (see Figure 6.2), these are the banks, property owners, SBR Nexus, and the PMS software suppliers. Additionally, there are a number of minor stakeholders that influence or are affected by the development and use of SBR Huurinformatie.



Fig. 6.2. Overview of the relationships between the main stakeholder groups in the SBR Huurinformatie information chain.

### 6.2.1 Property owners

The property owner is the stakeholder that will have to deliver their rental list to the bank with whom they have an financing agreement. Therefore, they have the responsibility of getting the correct information and data to the banks. However, this is not a homogeneous group. The group can be split according to the number of properties they manage and whether or not they use a PMS. Smaller property owners are more likely to have no PMS or unconnected ones. They will have to manually enter their properties into the system that banks set up, however it would still allow for a human-to-system type of interaction with regard to the data (see Figure 6.1A). The second group, who tend to have slightly more properties, generally has some form of PMS, however their management software might be something like an Excel sheet and is therefore not connected (see Figure 6.1A). Lastly, there is the group that has a large number of properties who have a PMS that could be connected to SBR Nexus and by extension the banks (see Figure 6.1B).

Aside from their use of a PMS there is another distinction that can be made, that is in terms of how welcoming they are to the transparency that accompanies an information chain. The institutional property owners, such as pension funds or listed real estate investors, tend to be more open towards more transparency. Whilst there are also opportunistic real estate investors for whom the current market's lack of transparency is their business case and thus prefer it to remain this way.

#### Influence

The influence of property owners on the development will be relatively low, especially for the smaller property owners. Their main threat would be to switch to a different bank. However, the three largest banks within the Netherlands are behind SBR Huurinformatie so this is unlikely to be a viable option for most of them. Additionally, while the other banks, not part of FRC, might not have a system like SBR Huurinformatie they will still require the same data as this is part of regulations from the European central bank (ECB)<sup>1</sup>.

While the property owners might not have a lot of influence on the banks, the same cannot be said for their influence on software suppliers. Here the larger property owners, that use a PMS, have an influence, as they can change PMS provider if their system does not allow them to connect with their bank. This will become more important once the banks start to mandate the use of VT for delivering rental lists.

<sup>&</sup>lt;sup>1</sup>G. Huis in 't Veld, personal communication, May 2022.

# 6.2.2 Banks

With regard to their clients the banks have to comply with rules set out by the ECB and DNB, in addition to their own risk policies. Therefore, it is important for the banks to have complete and accurate data on the properties of their clients. To achieve this the banks set a goal to receive the required data in a standardised manner from both clients with a large and a small number of properties.

### Influence

The banks influence the taxonomy in that they steer the direction of the development, both as the owner of SBR Nexus as well as the main user of the SBR Huurinformatie. Due to the requirements of the ECB with regard to compliance, the banks have a high interest in implementing this information chain, since the goal is to make complying easier. Secondly, the banks with their mandate also have the blocking power in the development of this information chain.

### 6.2.3 Software supplier

The stakeholder group software suppliers can be split up between the software supplier contracted to make the initial application to share rental lists with the banks and other software suppliers that are currently in the process of being connected. The original application was made to allow for the connection between banks and property owners that did not have a management system. Recently, there has been contact with other PMS software suppliers to get them connected to SBR Nexus so their users can directly deliver the data to the banks.

### Influence

The initial software supplier had a lot of influence on the development of SBR Huurinformatie. They were the software supplier that together with the banks developed the initial application. However, due to the nature of this development route the application became more a PMS than an application to deliver data. This has led to the current situation where there is a de facto monopoly of the initial software supplier until other software suppliers are connected by SBR Nexus. Another consequence of the initial software supplier being there from the start is that they could start operating independently from SBR Nexus, because they have the knowledge and infrastructure required. They would then be the intermediary connecting the property owners and banks. This means they are a stakeholder that could be disrupting to the development of the information chain under consideration.

With regard to the other PMS suppliers, they have an influence on the adoption, of the information chain SBR Huurinformatie, in whether or not they decide to implement the connection to SBR Nexus and by extension the banks in their system. However, once they have decided they want to connect to the platform of SBR Nexus, they have little influence on the development process. Currently, a standard template contract and connecting pathway are being developed. As a consequence, all new software suppliers that wish to connect will have to meet similar requirements.

### 6.2.4 SBR Nexus

The last major stakeholder is SBR Nexus who connects the different stakeholders within the chain. This includes: 1) allowing different software suppliers to be connected to the SBR Huurinformatie network, and 2) supporting them with the implementation of the taxonomy that is required by the banks. Furthermore, they also support the banks with the implementation of SBR Huurinformatie and adoption by the property owners. Aside from coordinating the different stakeholders in the chain, SBR Nexus also develops and maintains the taxonomy that is used for SBR Huurinformatie. This taxonomy is the same as the one that is used for SBR Taxatierapport, namely the VT.

#### Influence

The development of SBR Huurinformatie started after SBR Nexus gained more ownership of the products they developed, specifically this was the first product that is fully developed as part of SBR Nexus. However, it is still dependent on the FRC banks for the requirements in terms of the data points that have to be included.

Additionally, SBR Nexus is the stakeholder responsible for connecting other software supplier to the information chain. This means they have a large influence on how different parties, mostly software suppliers, can connect to the platform. Currently, this process has become more formalised by setting up contracts with the different software suppliers. A standard template agreement is developed for the software suppliers by SBR Nexus. Generally speaking, those software suppliers that service a large portion of the FRC banks' clients will get priority. SBR Nexus prioritises connecting those software supplier, because of the multitude of data sets being involved in connecting a software supplier to the platform.

## 6.2.5 Other stakeholder

### Regulator (ECB)

The ECB is one of the stakeholders that has a high amount of power with regards to the development of SBR Huurinformatie, as it is their requirements that gave the direction on what needs to be included in the data set that is sent. Additionally, they essentially require that the banks meet certain standards with regard to their data. However, the interest of the ECB in the specific development of SBR Huurinformatie will be low, as they are mostly concerned with banks meeting the requirements not necessarily how exactly the banks meet those requirements. Therefore, they have an indirect influence on the development.

### Property manager

An additional group of stakeholders that is affected by the development of SBR Huurinformatie are the property managers. They manage the properties on behalf of the property owners and in those cases they are the people responsible for adding the properties to a PMS. Whether the property manager has to change their work process will depend on which PMS is used and how SBR Huurinformatie is incorporated in this software. However, they will have little influence on the whole development as they are contracted by the property owners.

# 6.3 Stakeholder involvement

Initially, this development was started as experiments by two of the FRC banks. As a result, all three banks became involved as stakeholders, which led to the involvement of SBR Nexus. In order to expand SBR Huurinformatie for smaller real estate owners an external consultant was involved, since they were already in the process of developing an application for rental lists. Additionally, they were involved to provide knowledge and contacts within the property management world. However, this involvement turned out to be difficult to manage due to competing interests and visions for the product, as will be discussed in Section 6.5.

In addition to the development of the infrastructure, there was also the development of the VT which is used for SBR Huurinformatie. As mentioned above, the VT is a sectorial taxonomy and the work group and expert group structure from SBR Taxatierapport was maintained. This means that the work group which is mostly focused on the valuation process also decides on the taxonomy for SBR Huurinformatie. Consequently, valuers have been involved here, although they have no interest nor knowledge about rental lists, while the property owners or PMS software suppliers are not involved. This leads to an one-sided development of the taxonomy from the banks perspective.

Currently, the involvement of property owners, or their professional associations, is limited. Because the other stakeholders, specifically the banks, determine the requirements that the property owners have to meet. However, they are involved in tests to see if the data model works and if a new PMS supplier can successfully deliver to the banks. Additionally, some professional organisations have been consulted on occasion yet this has not led to active involvement.

Recently, software suppliers that have developed a PMS are being more involved as there is more interest in the PMS market to be connected through SBR with the banks. Here, two software suppliers have become involved in the development. However, the majority of software suppliers, certainly those that are currently being connected, are not involved with the development of the information chain. Their involvement is limited to meeting the requirements to be able to connect to the information chain.

# 6.4 Stakeholder roles

One of the main changes in roles has been observed with the software supplier due to the use of the external consultant's product. Initially, the consultant was very much involved in running the project together with SBR Nexus. However according to the interviewed stakeholder from SBR Nexus, SBR Nexus' interest was not aligned with the consultant. The consultant was interested in pushing their product and trying to achieve as many additional features, while SBR Nexus had the role of limiting additional features and keeping the development in line with the original goal.

Aside from this, the roles have not changed significantly during the period of development, according to those interviewed, although it should be noted that due to external circumstances not all stakeholders have been interviewed. It can be seen in Table 6.1 that SBR Nexus and the banks agree that the property owner is the data creator in this information chain. Additionally, there is agreement about the facilitator role for the software supplier. This was described, by the interviewees, as the software suppliers having to implement the VT and make it possible for their users to send their rental information to the banks. However, SBR Nexus has an additional expectation for the software supplier, namely the communicator role. The software supplier has contact with a lot of property owners due to supplying the PMS, as such they are also the party that inadvertently receives the feedback from them. SBR Nexus would like to see them take up the role to communicate this feedback to SBR Nexus. However, this is still mostly an expectation at the moment as the majority of software suppliers are in the process of being connected to SBR Huurinformatie.

Tab. 6.1. An overview containing the expectations with respect to stakeholder roles that stakeholders have for themselves and other
stakeholders in the SBR Huurinformatie case. Additionally, the stakeholder roles that are currently observed. On each horizontal line
the expectations and roles attributed to that particular stakeholder are shown

		SBR Nexus	Banks	
		Mediator	Mediator	
	Expectation		• Developer	
		• Convener		
SBR Nexus		Mediator	Mediator	
	Dolo		• Developer	
	KUIC	Convener		
		• Implementer		
		• Data user	• Data user	
	Expectation	• Initiator	• Initiator	
Donko			• Developer	
Daliks		• Data user	• Data user	
	Role	• Initiator	• Initiator	
			• Developer	
	Eurostation	Facilitator	Facilitator	
Software supplier	Expectation	Communicator		
	Role	Facilitator	Facilitator	
Proporty owner	Expectation	Data creator	Data creator	
rioperty owner	Role	Data creator	Data creator	

When it comes to the banks there is agreement on two of the roles that the banks have, which coincide with roles that are expected of them. First is the role of data user, they are the ones that need the information and are going to use it in their processes. Secondly, is the role of initiator having started the development and moving the rest of the chain to start using SBR Huurinformatie. Lastly, the banks give themselves the role of developer, meaning that they give themselves the role of supplying the requirements needed in the chain. In this case this means ensuring that the correct data points are taken up in the VT such that the property owner can give the correct information.

Lastly, there is SBR Nexus where both the banks and SBR Nexus give them the role of mediator. Additionally, SBR Nexus sees, and expects, themselves to be the convener, meaning they give themselves the role to ensure

that all the required stakeholders are at the table during discussions. However, given that valuers are present during the discussions with regard to what should be included in the data set for SBR Huurinformatie this role is not fulfilled optimally by SBR Nexus. A number of the actual stakeholders in this information chain should be included instead. Furthermore, SBR Nexus sees themselves as the implementer of the requirements in the form of software solutions, which is not a role that other stakeholders, specifically the bank interviewees, find that they should take. The banks give SBR Nexus another role, which also meets their expectations, which is the developer role. They expect that SBR Nexus helps them develop the requirements that were given to the external consultant to take into account while developing their product.

# 6.5 Agreement frameworks

Within this information chain there are agreements that existed in some form before the development of SBR Huurinformatie. The first is the contractual relationship between the property owner and the bank if they have a loan with that bank to finance their property. Furthermore, depending on the number of properties a property owner has they may also have a contractual relationship with a PMS supplier.

When the development of SBR Huurinformatie was started with SBR Nexus a project proposal was made and agreed upon. This project proposal contained the scope of the project as well as how the project was divided. The project was divided into part A a system-to-system information chain for larger real estate owners; part B developing a human-to-system information chain and application for the smaller real estate owners; and part C a data platform for audit trail logging. Within the proposal it was clearly stated how the governance structure would be, namely SBR Nexus would take the lead in the development. Furthermore, it defined what was out of scope for this project, such as the implementation at the side of the banks. The banks themselves were expected adjust their processes and have the requirements.

However, this is where the interviewed stakeholders indicated that improvements could have been found in the process. The costs, governance, and general overview were decided upon in the proposal. However according to the stakeholders interviewed, a more thorough check to see if all the parties were on the same page with regards to the requirements should have been done. As a consequence part B, focusing on smaller real estate owners, received a lot of attention and became very extensive. This was due to the external consultant being able to consistently push for more features and parts to the product instead of focusing on the assignment, namely setting up an application for property owners that do not have a PMS. Thus, this product became more than the application it was set out to be, and instead became a type of PMS with a connection to banks on its own. In conclusion the agreement missed a clear mechanism to keep the development on track, partly because the banks were not in agreement, with each other, what that track should be.

Another example, given by the interviewees, is with respect to the exact expectations the banks had about the first version of the process. One of the banks wanted a fully functional process that would allow them to reliably identify which other stakeholder in the chain sent the information and was very focused on the data quality. While the other banks were satisfied with a system that could deliver them the information digitally and where they can manually check with the property owner if they see something out of order for the first version. Or as one of the interviewed representative of the banks stated (translated from Dutch):

"I think that we chose too quickly for a particular solution and that all parties looked at it with slightly different expectations and that everyone was under the impression that [name software solution] is the solution that will solve everything."

Instead of taking the time to see what processes are currently there and what type of change is required, the banks assumed that the software solution would solve this. Furthermore, one of the three banks already had a system to receive high quality data before the development of SBR Huurinformatie. Therefore, they wished to ensure this level of quality was maintained with their focus on further automation and quality improvement. On the other hand, the other banks still had to meet the data requirements set out by the regulator and as such were content with a lower level of data quality as this meant they would receive data.

Moreover, while the initial governance structure was described in the project proposal, this governance structure was not continued. As the project progressed from initial development stage to actual use the governance

structure disappeared. An additional effect was that over time the mandate representatives, from the banks, had within their own organisation was lost as well.

Recently, SBR Nexus has started with the process of formalising their cooperation with software suppliers of PMSs, outside of the initial product aimed at the smaller property owners, by concluding cooperation agreements. These are cooperation contracts that have three main points: 1) a definition of the data set that will be exchanged, 2) data processing and data security, and 3) definition of roles and responsibilities. This is a model agreement that is the same for all the software supplier that wish to connect.

Outside of these three points there are three parts to the agreement. First is the implementation trajectory. For a software supplier to be allowed to send SBR Huurinformatie it must show that is can do the mapping, i.e. their data points are linked to the correct data points in the taxonomy, of the rental data correctly. Additionally, they have to show that the rendering, i.e. obtaining a human readable version, of the data will go correctly. Secondly, there is the conversion of the data to XBRL for validation of the data. However, both the stakeholders at the start and the end of the chain tend to work in a different data format that is better understood by them. Yet the agreement stipulates that the software supplier is responsible for this conversion either through a third party conversion service or an inhouse service. The last part of the agreement is the commitment of the software suppliers to create a better overview of the timeline for implementation with new developments. As a result all software suppliers have the same milestones they have to meet. The implementation, specifically the mapping, is currently done manually and very time consuming. Therefore, software suppliers are prioritised based on the number of bank's clients, within the targeted client segments for data exchange, they serve.

Lastly, there is the agreement between the banks and the property owner with regard to delivering information. As mentioned, this agreement already existed in some form before the development of SBR Huurinformatie. It depends on the specific bank, that a property owner has to supply information to, whether current agreements mandate the use of SBR Huurinformatie. One of the banks mandated it for all their clients, because with the initial application all clients have the possibility of delivering the information according to the VT standard. While other banks did not wish to immediately mandate it for all their clients as it was still in its development phase. Instead groups of clients were obligated to use SBR Huurinformatie. They started with smaller property owners who were not using any PMS and directing them to the initial application. Once a PMS is connected to SBR Huurinformatie these clients are obligated in groups to start using it.

# 6.6 Conclusion

One of the main points that was compromising the development is the number of interests that worked against each other instead of together, since there was a lack of consensus with regard to the requirements. As described above, the three different banks had a different state of affairs when it came to rental data and thus how well they met the regulators requirements. This led to one bank being more interested in developing the application that was part of the external consultant's product, while another bank wanted to look at the entire process.

Additionally, a large focus was put on creating the application for the smaller property owners, while more gains can be made by connecting PMSs that service the large property owners. However, it took a while before the different stakeholders, within the information chain, realised this. One of the interviewees said that one of the learning points was that a more extensive problem analysis should have been done before the start of the development to get a better overview and ensure that all the banks are on the same page.

Similar to SBR Jaarrekening, there is a clear business case for the banks to introduce this system. Yet the other parties in the chain do not have such a clear business case at moment. For the software suppliers they first have to make the costs involved with implementing SBR Huurinformatie and only when numbers start to increase will they get a business case in selling their PMS. The property owner has the least clear business case as their business case depends on a lower rate at the bank, however due to competition laws banks cannot advertise with this. Furthermore, banks do not have to pass the efficiency benefits on to their clients. Therefore, the main point for property owners would be that it is either mandated or the process of delivering data through SBR Huurinformatie is significantly easier than the current process.

# **Chapter 7**

# **Results & Discussion**

In the previous chapters the three cases were discussed separately, here the cases are compared to assess the similarities and differences between the development of the different SBR information chains. First, the stake-holder overview and changes will be compared, followed by the stakeholder interests and roles. Then, the agreement frameworks will be compared and their influence on the stakeholders will be discussed. The similarities and differences will be used to develop guiding principles for the development of B2B information chains to answer the main research question of this study.

# 7.1 Stakeholders

The first sub-research question is "How do the interests and roles of stakeholders change during the process?". Before answering this question it is relevant to first look at the stakeholders that are involved in the three information chains and see if there have been any changes in the composition of the stakeholder field. For all three cases the main stakeholder groups stayed constant throughout the development, however the individuals that are involved for each of these stakeholder groups did change either due to people continuing in their career or changes in ownership of the software solutions.

Specifically, the changes in individual representation on the side of the banks was pointed out as a source of instability with regard to the development in all three cases. As Winkler (2006) stated, when the important individuals change this can bring with it a change in attitude towards the network or development resulting in instability of goals or objectives. One of the steps, within the continued development of the SBR information chains, where these changes were most noticeable was in the development of the taxonomy. For each new version of the taxonomy the different data entry points and their definitions should be checked, this is done manually by the banks. Therefore, the quality of these checks is dependent on the person that carries out the checks. The extend to which the checks are done depends on the priority and sense of urgency that the taxonomy has for the person, since checking the new version of the taxonomy is not their only task. As a consequence it has happened that all the steps had been completed only for problems to be spotted during the release of the taxonomy, where it turned out that the earlier checks had not received enough attention by the person responsible.

Another hindrance that was observed as a result of individual changes was the loss of knowledge. This applied to both the knowledge of the internal system needed for the information chain as well as the technical knowledge. Furthermore, these changes in available knowledge also affected how well the checks on the taxonomy were performed. Specifically in the case of SBR Jaarrekening it was noted, by SBR Nexus interviewees, that the person checking the data entry points and definition could not always do so for all different departments that use the information chain and its accompanying taxonomy. In addition, the changes in individuals also meant that new people had to be familiarised with the XBRL technology as this is not a technology that most of the stakeholders are familiar with.

In conclusion, changes in individuals representing stakeholder groups hinder the development of information chains. While the stakeholder groups have not changed during the development.

## 7.1.1 Stakeholder interests

The interests of most stakeholder groups in the three cases stayed the same during the evaluated period, with the exception of the software supplier. Maintaining or creating a business case is the main interest in this development for all stakeholders, except for the property owner and business. Their interest is in meeting the banks information requirements without incurring additional expense compared to the situation prior to the development of the SBR information chains. However, the detailed interpretation of the main interest did vary within stakeholder groups.

### 7.1.1.1 The banks' interests

One of the stakeholder groups where the interests at first glance seem to align is the banks. They are the group with the clearest business case for the development and implementation of the information chains. For all three cases there are the benefits of improved data quality, less human actions, and improved accuracy of their risk models when the information chains are fully implemented. Furthermore, they will be better able to meet the requirements of the regulators with these information chains. However, despite the overall business case that holds for all three banks, in all three cases the wishes and interpretation of the banks differ. The interviewees attributed this to the different internal processes and organisational structures of the banks. However, this leads to different interests when one looks beyond the overall picture of a paperless finance system. These interests, with their differences, stayed constant throughout the period that was analysed.

The differences were mostly located in the exact requirements that the banks have for the information chains. In all three cases it was seen that coming to an agreed upon set of requirements, that would suit their individual needs, was difficult for the banks. The most severe case was SBR Huurinformatie. Here, as discussed in Section 6.5, one of the banks was looking to further streamline the data collection they already had, while the other two banks still needed to set up a system to collect the data required by the regulator. However, those two different interests also lead to completely different expectations of the development as noted by one of the interviewees from SBR Nexus.

Additionally, there is a difference in view on whether the aim of the information chain should be automatisation or digitalisation. Here digitalisation means that data is transferred in a system-to-system manner, thus staff no longer enters the information into the system. However, the decisions that are based on the received information are still made by people at the bank. While automatisation not only digitises the processing of data sets, but also automates the decision making process where only special cases are assessed by a person. Thus, leading to different interests and again different expectations.

However, this lack of consensus makes it complicated to set goals for the overall development, which will be discussed later (Section 7.2.1), and that is important for the development of a governance structure. On top of the difference between the banks there are also differences in interests within the banks. There is the need to find the balance between data quality and customer experience, since both are interests of the banks yet they can be conflicting. This is especially noticeable in the case of SBR Jaarrekening, where the business owner is choosing between the different banks for their financing. The interviewed bank representative noted that banks do not wish to make the process inconvenient for their potential client as they can go to the other (FRC) banks. Ideally, these interests should not conflict, however that is in large part dependent on the implementation strategy of the software supplier and how user friendly they make their software.

### 7.1.1.2 Software suppliers' interests

When it comes to the software supplier stakeholder group, a shift in their interests with regard to the information chains can be observed. In all three cases the software supplier will only have a business case when there is enough demand for the SBR information chains, yet they have to make the costs in advance. Therefore, in the initial phase there was little interest to invest in the SBR chains, because there was uncertainty whether this would become the standard. However, as the development continued the interest of software suppliers changed to being able to give their customers the option to connect to the banks through the SBR platform. Recently,

this change is especially noticeable for SBR Huurinformatie where adoption has grown as a result of banks starting to specifically mandate its use. Here, the interest changed with a clearer business case for the software supplier. Additionally, it is in the interest of the software supplier to see the development of the information chains go in a direction that is easy to implement within their existing software.

As noted by Bharosa et al. (2018), the software suppliers are the stakeholder that can pave the way for the other stakeholders to use SBR. It is therefore important that the software suppliers can trust that SBR will become the standard and that they will get a business case that allows them to recoup the development costs they made. Furthermore, they can align the internal interests within banks between data quality and customer experience by making their solution user friendly.

### 7.1.1.3 Intermediaries' interests

The valuers and the accountants wish to maintain their business case, this interest has not changed during the development. However, depending on the willingness of the intermediaries to adapt their business case to the more digitised version that are SBR information chains, it can clash with the banks interests in digitalising/automatising financing. A part of the intermediaries see the PDF document that they send as their main point of differentiation and as such are hesitant to switch to SBR were the format is standardised. Here, it depends on the individual firms whether they can see a business case in the new manner of communicating with the banks. Secondly, both stakeholder groups' interests are following the guidelines for their particular profession in terms of what constitutes a valuation report or a financial statement.

Overall with regard to the interests of the different stakeholders, it can be seen that there are tensions between interests both between stakeholders and internally for some stakeholders groups. Additionally, some interests, such as the business case for software suppliers, are difficult to meet in the initial phase of the development yet crucial for the development.

## 7.1.2 Stakeholder roles

The first sub-research question did not only look at the interests of the different stakeholders, but also their roles in the development of the information chains. In all three cases, the interviewees indicated that their expectations for the other stakeholder groups did not change during the time frame analysed. There are some slight changes over time regarding to how well expectations were met by the various stakeholders, although only limited changes have been noted by the interviewees.

As discussed in Section 5.1, the division of roles in the SBR Taxatierapport case has the highest number of instances where the different interviewed stakeholders disagree on what the role is that a particular stakeholder has and should have. One explanation could be that the noted roles are the most important roles that these interviewed stakeholders have for the stakeholders within the chain and thus these were the roles that were top of mind. Yet, with the notable exception of the expert role, the expectations meet the current roles stakeholders fulfil according to the interviewed stakeholders. On the other hand, it could also be a consequence of the roles not being clearly specified. In none of the three cases there are specific agreements about the division of roles among the stakeholders aside from the roles for SBR Nexus that are formulated in their statutes. Thus, the division of the roles is informally arranged, which, as Winkler (2006) stated, can result in a difference in interpretation of shared rules and norms between the parties in the network. This could be the case here, however that would have to be investigated further. SBR Huurinformatie, similar to SBR Taxatierapport, has some disagreement on what the division of roles should be between the interviewees, however less. Although again in most instances, the reality meets expectation.

The same cannot be said for SBR Jaarrekening (see Section 4.4). Here, there is a broader consensus among the interviewees what role(s) the different stakeholders should have, yet the expectations match reality less often than is the case for SBR Taxatierapport. An explanation for this difference could be that there is an additional stakeholder between the data creator and user in the SBR Jaarrekening case. In the SBR Taxatierapport case, there is direct contractual agreement between the valuer and the bank, whilst for SBR Jaarrekening there is the step of the business in between. It is the business that has a contract with the bank and the accountant, but the

accountant has no formal relationship with the bank.

Furthermore, the expert role is the role that is the most contested in all three the cases. Therefore, it will be discussed in more depth. Additionally, the two stakeholder groups where the interviewed stakeholders agreed the least about the roles were the software supplier and SBR Nexus.

### 7.1.2.1 Expert role

The expert role is the individual or stakeholder that supplies the expertise on what should be included in the various reports that are being standardised, such as the financial statement or the valuation report. It is a role that is disputed in both the SBR Jaarrekening and SBR Taxatierapport case. This disagreement mostly focuses on who should take the expert role and whether or not they can actually fulfil this role. In the SBR Jaarrekening case, the interviewed accountant, as discussed in Section 4.3, feels that their opinion on the financial statements should be taken into account more. While the interviewee from SBR Nexus already finds that accountants are fulfilling the expert role and the interviewed representatives from the banks feel that they have the expertise themselves. Several interviewed stakeholders noted that there is a lack of mutual understanding between the banks and accountants, including the interviewed accountant and bank representative.

On the other hand, for the SBR Taxatierapport case all stakeholders agree that the valuer should be the expert on the subject of valuations and what they contain. However, most stakeholders, beside the interviewed valuer, noted that the valuers should take this role more and that they should be more assertive in giving feedback. The interviewed software supplier suggested that the valuers may not feel comfortable giving feedback as they depend on the banks for commissions (see Section 5.2.2).

Furthermore, in the interviews it came forward that part of the reluctance to use the information chains stems from the intermediary parties not being sure that the SBR solution would meet their professional standards. Therefore, allowing them to be the experts on ensuring their professional guidelines are included in the SBR solution could take away some of this reluctance. Additionally, the feedback from the intermediaries, but also software suppliers, gives information about the feasibility of implementing parts of the information chain and whether or not this is possible and reasonable.

#### 7.1.2.2 Software supplier

It is not only specific roles that are disputed, there is also disagreement on the specific roles certain stakeholder groups should take, of which the software supplier is one. For the stakeholder group software suppliers there is agreement on their main role within the information chain, namely implementer, which is implementing the most recent taxonomy, and facilitator, which is facilitating the other stakeholders such that the use of SBR solutions becomes easier. Within the SBR Jaarrekening case, the emphasis is more on the implementation of the technology. An explanation for this is that the stakeholders in the SBR Jaarrekening information chain are not unfamiliar with SBR, given that it is also used in the communication with the tax office and chamber of commerce (Bharosa et al., 2015). Whilst in the other two cases SBR and the technology behind it were a new development, here the software supplier could take away hurdles by creating easy to use software solutions. Hence, more of a focus on the facilitating aspect of the software supplier. This is in line with what Bharosa et al. (2018) observed that the software suppliers are key to moving the implementation of the chain along.

However due to the informal division of roles, it can be seen that there is some stretching of roles for the software supplier. As a result of their key position within the chain, in all three cases they are in the main position when it comes to receiving feedback from the users. Generally, this feedback is not limited to just the software, but also covers feedback on the information chain as a whole. Or as one of the interviewed accountants said:

"..., because the moment the system does not work the first party that I will call is my software supplier." (translated from Dutch)

As a result, the software supplier has or is expected to have a communicator role by the interviewed stakeholders, meaning that they are the stakeholder that aggregates the feedback from one group of stakeholders and communicates this to SBR Nexus. Yet, not all software suppliers desire to have this role. Specifically in the case of the SBR Jaarrekening, the interviewed software supplier said that he would rather see that they only receive the instructions about what needs to be implemented for the next version. While the interviewed software supplier in the SBR Taxatierapport chain would prefer to see this role of communicator between the valuers and SBR Nexus used more. Thus, in the chains the roles should be carefully divided such that software suppliers that wish to take up the role of communicator between their users and SBR Nexus can have this role, while other software suppliers do not have this role if they do not wish to. Or make clear agreements that this is an expected part of being a software supplier in the chain. It is more convenient for the chain, and specifically SBR Nexus, to receive aggregated feedback from a number of software suppliers instead of the hundreds of customers they represent.

This communicator role can be stretched further towards the expert role as is the case for SBR Taxatierapport, where software suppliers have stepped into the gap that is left by the valuers reluctance to give feedback. However, some other interviewed stakeholders in the chain see this as an overreach of the software supplier's role which could be a reason for conflict. Therefore, it is important that the roles are clearly defined as stated by Sayogo et al. (2020).

### 7.1.2.3 SBR Nexus

Similar to the software suppliers the exact role for SBR Nexus is unclear with possible role stretching as well. In all cases, SBR Nexus was seen, by the interviewed stakeholders, as the convener, mediator or both in the information chain development. Yet in the interviews with the representatives from the banks, they indicated that they expect SBR Nexus to take a more leading role in developing a vision. Whilst interviewees on the SBR Nexus side held the opposite opinion that the banks should develop a vision of where they want to go.

This vision would ideally include the direction they want the development to go in, what data they require, and what the goal is whether that is digitalisation or automatisation. However, as described above, there is no clear direction between the three banks when it comes to development. Therefore, they seem to put the task of finding a common vision on SBR Nexus. Which is seen by the interviewed representatives of SBR Nexus as stretching their role past what should be within their packet of tasks. Additionally, SBR Nexus does not have the mandate to get other stakeholders to cooperate and is dependent on the willingness of other stakeholders as will be discussed below.

In conclusion, ambiguously defined roles hinder the development and implementation of the information chain. It can lead to conflict or frustration among the stakeholder involved (Sayogo et al., 2020). In addition, stakeholders can be under the impression that another party has a certain role leaving the role unfulfilled.

# 7.2 Agreement frameworks

This section addresses the second sub-research question "What types of agreement frameworks are developed during the process?" and the third sub-research question "What influence do the agreement frameworks have on the stakeholder's interests and roles during the process?". For the three different cases the formal and informal agreements were analysed looking for the governance structure, use of mandate, communication, and technology.

## 7.2.1 Governance structure

Two of the cases, SBR Taxatierapport and SBR Huurinformatie, started with a formalised governance structure which laid out the responsibilities for the banks and SBR Nexus/SBR Banken. The SBR Taxatierapport governance document was rather minimalist as it only contained the setup and stakeholder involvement in the work and expert groups. Here, it was recognised that including at least one of the software suppliers would be crucial to the development of the information chain (Bharosa et al., 2018). SBR Huurinformatie started with a higher degree of formalisation including a proposal agreed upon by all three banks, which was a consequence of the lessons learned from SBR Taxatierapport. The proposal was more extensive in what the roles were for the different stakeholders and which responsibility belonged to which stakeholder.

Yet, neither of these governance documents contained any control measures to ensure that the documents kept being followed or that they were adjusted to the changing phases of the development. Thus, as the development of the information chains progressed past the initial development stage for which these structures were set up, the governance structure became more informal. A consequence was that the representatives for the different stakeholders would no longer be individuals that had the necessary mandate within their own organisations. Thus, the decisions made collectively by the chain would not be implemented, which was especially problematic in the case of the banks. Furthermore, it could lead to delays because weeks' or months' worth of discussions could be rendered useless. Additionally, the software suppliers were no longer automatically included in the work/expert group meetings.

Currently, all three cases have informal agreements with regard to their governance. Which, within the time period of analysis for SBR Jaarrekening, has always been the case. The overall chains have a network type governance where the contracts are socially instead of legally binding (Jones et al., 1997). Specifically, the NAO network governance model is most seen in the structure of the three information chains. As discussed (see Section 4.1.1), SBR Nexus is an entity that is set up specifically for the purpose of managing and maintaining the information chain infrastructure and to get all the different parties at the table. This makes sense as the development and maintenance of the taxonomies requires network competencies that would be difficult for any of the other stakeholders to invest in on their own.

While there is a NAO network governance model, there is also a dependency in the chain due to the nature of the relationships between the stakeholders. There is a clear hierarchical structure within each of the chains where the banks have the lead, because all the other parties are directly or indirectly depended on them. Giving the governance structure elements of the lead organisation-governed model, as well as NAO, due to this dependency relationship between the stakeholders (Provan & Kenis, 2008). Although there is not one clear lead organisation instead it is a stakeholder group. This means that, for this stakeholder group to take an active lead in the direction of the information chain, they have to agree upon the direction which, as discussed in Section 7.1.1, proves difficult.

For either of these types of informal governance, it is still required that there is some goal consensus among the stakeholders. Although in the case of lead organisation-governed, it is possible for the lead organisation to enforce more of their goals upon the rest of the network (Provan & Kenis, 2008). However, this requires that there is a consensus among this stakeholder group. All stakeholders within the chains can identify themselves in the goal of a finance system that is more efficient and user-friendly whilst also maintaining or gaining a business case. Once it comes to developing more concrete goals on how this should look in reality, it can be observed, as discussed above, that the interests of stakeholders are different and therefore so are their goals. More importantly the three banks that push the development are not in full agreement what the goal should be and thus what the requirements are.

Furthermore, in all cases, the other stakeholders, besides SBR Nexus and the banks, have no obligation to be part of the meetings that discuss the development and direction of the information chains. They instead participate because they find it to be in their own interest to do so. Generally, they are all intermediaries that are enthusiastic about the further digitalisation of their profession and also see this as an inevitable future.

In conclusion, an agreement framework for the governance structure should contain rules about the division of roles such that it is clear to all stakeholders what their role is and what they can expect from other stakeholders. Secondly, it should contain controls to ensure those roles are indeed fulfilled as expected, but also controls to ensure that the governance structure is kept and adjusted as needed during the development. Additionally, rules should be formed to determine which representatives can take part in the meetings where decisions with regard to the information chains are made. The individuals should have enough mandate within their own organisation to be making those decisions. Lastly, it is important that these agreements are formalised such that there is agreement on the interpretation of the rules. This prevents stakeholders unknowingly breaking agreements because of different interpretations or ignorance about certain unwritten rules (Winkler, 2006). An incentive for the stakeholder to agree with these agreements is because it gives them more certainty what the norms are with regard to the development and thus what they can expect.

# 7.2.2 Mandate

The mandate for change within these chains lies with the banks, since they can mandate their clients use SBR to deliver the required data to them in the XBRL format. As a result, the intermediaries also require SBR further increasing adoption and making it more interesting for software suppliers to adapt their software to be compatible with SBR. However, as already discussed in Section 7.1.1, the interests of the banks are not only receiving data in a manner that increases the quality and reduces the human element, they also have an interest in the customer journey.

Furthermore, the three banks each have a different focus and thus readiness when it comes to the implementation of the different SBR solutions. As a result, the banks are not necessarily ready at the same time to mandate the use of SBR. This means that it is likely, as is currently the case, that when one bank mandates the use of a SBR solution that the other banks are not ready yet. The concern of the banks with mandating is that they will make the customer journey so unpleasant that their (potential) client will go to one of the other banks. While they have set up SBR Nexus cooperatively, they are still competitors in the financial market.

What can be seen is that in most cases where the banks do mandate the use of SBR this is with clients that already have a formal contract with them and thus there is less of a risk that the clients will switch to one of the other banks. Another reason why the banks may use their mandate is when they are confident that the use of SBR makes the customer journey more pleasant for their clients. However, currently there are still exceptions which effectively negate the indirect pressure of the mandate on the second line of stakeholders. One such exception is when the clients' accountant charges them extra for sending the financial statements through SBR instead of the PDF financial report that accountants are used to. Depending on the bank, the client may still be allowed to send the statement as a PDF, resulting in an even lower pressure on the accountant to change.

This does slow the adoption and implementation of SBR solutions as mandating the use of a certain standard or technology is shown to be an effective way to steer towards adoption once technological readiness has been achieved (Bharosa et al., 2018; Kreuzer, 2017). However, due to the stakeholder group with the most power being three competing organisations, it complicates the use of mandates in these chains as opposed to its use in the public-private context were the government can make a standard obligatory without concern for business going to a competitor.

However, aside from the mandate of the three banks, the banks themselves also have to meet external requirements set by the regulator i.e. DNB or ECB. While neither mandates the use of SBR information chains specifically, they do require that the banks meet their obligations towards the regulator. It has been noted by the interviewed representatives of SBR Nexus that once the regulator starts requiring a specific type of data, that can be acquired through a SBR solution, the banks will give the development a higher priority and more urgency.

## 7.2.3 Communication

One of the types of rules, that Ostrom (1986) stated, that can emerge as part of an agreement framework are information rules, which specify how the communication is done. In the interviews<sup>1</sup>, it came forward that there are limited rules on communication with respect to information and agreements. This has led to confusing messaging such as about the way banks wish other parties, within the chain, communicate with them. On one hand, letters are being send to clients that they should use SBR, yet on the other hand clients' accountants are still requested to send the PDF versions, thus leaving other stakeholders with the question why they should use this manner of delivering data to the banks. Furthermore, for many stakeholders the business case is unclear, thus leaving them wondering why they should change their work practices to accommodate SBR when sending the PDF version worked well for them.

Secondly, multiple interviewed stakeholders in the SBR Jaarrekening case said that there should be better communication with regard to how the different processes work for the different stakeholders. Currently, there is, certainly in the SBR Jaarrekening case, miscommunication about the state of implementation and definitions. An example can be found in the definitions for the size of a business for the SBR Jaarrekening case where the

<sup>&</sup>lt;sup>1</sup>This refers to the different interviews held by the author as part of this study.
accountants and the banks can talk about completely different sizes of businesses while using the exact same terms. Although, better communication about the internal processes of stakeholders, that the information chain has to interact with, was also mentioned by interviewees in the other cases.

However, this also ties in with the differences between the different banks resulting in difficulty with establishing common goals. Therefore, specific attention should go to ensuring that all stakeholders understand each other's processes and definitions. Such that, when updates to either the taxonomy or infrastructure are considered, it is also possible to take into account if they are reasonable to implement in the different stakeholders work processes.

## 7.2.4 Technology

All three SBR information chains have agreements about how the technology is to be used. These agreements are mostly relevant for the software supplier as they have to ensure that they comply. Whilst the intermediaries generally meet the agreements with regard to the technology if they use a software solution that has the SBR solution integrated. The banks also have to ensure that their systems can work with the agreed upon technology, which does not always happen at the same time for the three banks when there are technical changes to the information chain.

In all three cases, the information chain was built around the XBRL format and the technical infrastructure that is built and maintained by SBR Nexus. As noted by many of the interviewed stakeholders, certainly in the SBR Taxatierapport and SBR Huurinformatie cases, the XBRL technology was new. Specifically, for the software supplier this meant a learning curve in terms of how to implement this technology. The most difficult technological step for a lot of stakeholders is the conversion to the XBRL format that is needed for the validation of the data. Here, it was found that by supporting the software suppliers with information and connecting them with third parties that can provide the conversion to XBRL, these hurdles can be taken away. However, third party conversion does eat into the business case of the software supplier. This, combined with the lack of clear business case for software suppliers, means that there is a large hurdle to join the information chain, whilst they are a key stakeholder (Bharosa et al., 2018). Additionally, they risk lock-in with certain third party conversion services.

## 7.3 Information chain development principles

So far this chapter has analysed the various similarities and differences between the cases. In this analysis a number of factors were found that the interviewees or literature indicated influenced the development of the information chain in a positive or negative manner. Two factors were found to improve the development and implementation of a B2B information chain, 1) the use of a mandate, and 2) early involvement of software suppliers. Whilst four factors were observed to hinder the development, 1) changes in individuals representing stakeholders, 2) ambiguous stakeholder roles, 3) lack of goal consensus, and 4) lack of governance structure. However, the main research question of the study is "Which principles during the development of a B2B information chain improve the implementation by stakeholders?". This sections aims to go from the factors that influence the development to principles that can be used to guide the development of B2B information chains. The principles are derived from the available literature and suggestions by the stakeholders, that were interviewed for this study, on what they thought worked or should have been done differently. In total 25 principles were developed, an overview of which can be found in Table 7.1.

## 7.3.1 Early involvement of software supplier

One of the positive factors is the early involvement of software suppliers. This has been remarked by the interviewed stakeholders who were involved with the setup of the SBR Taxatierapport and SBR Huurinformatie. Bharosa et al. (2018) also observed that the early inclusion of software suppliers improved the implementation of the information chain. It was pointed out both in literature and by the interviewees that the software supplier

can take away the hurdles for the other stakeholders as they provide the means with which the intermediaries can use the information chain. Additionally, as mentioned above, the software supplier has a high degree of influence on how user-friendly the information chain is for the other stakeholders. However, one of the interviewed representatives of the banks, for the SBR Taxatierapport case, noted that a large number of potential software suppliers was not helpful. In the initial phase of SBR Taxatierapport there were a lot of software suppliers involved, however this made checking whether they could reliably send the data sets time consuming, since checking of the correctness of the data sets was and is done manually. Additionally, a larger number of involved software suppliers will increase the difficulty of finding consensus on how the information chain should be developed (Provan & Kenis, 2008). Thus, the following principle can be found:

#### **Principle 1:**

# Involve one or a limited number of software suppliers in the initial development phase of the information chain.

However, involving a limited number of software suppliers at the start of the development increases the risk of a monopoly in the software market. The reason that SBR Nexus and bank interviewees gave for this is that the software supplier involved will have a head start in the market. Furthermore, the software suppliers involved will steer the development in a direction that is in their benefit when it comes to implementation, giving the following principle:

## **Principle 2:** Increase the number of software suppliers after the initial development phase.

Additionally, in the SBR Taxatierapport case it was described, by the interviewee from SBR Nexus, that a comparison with the initial software supplier was used as the basis for the requirements for any other software suppliers that wanted to join. The consequence was that any prospective software supplier had to meet ever increasing requirements, because they were always slightly behind the initial software supplier. In the case of SBR Huurinformatie, the requirements and procedure to connect are being standardised at the moment, thus making it easier for potential software suppliers to know which requirements they need to meet to connect to the SBR information chain, leading to the following principle:

#### **Principle 3:** Standardise the requirements that potential software suppliers need to meet.

As mentioned before, in all three cases it was noted by the interviewees that the software suppliers had limited if any experience with the XBRL format and the associated technology. This is a potential hurdle for the software suppliers that wish to join the development as they have to invest in acquiring knowledge about this technology. This hurdle can be decreased by the initiator providing information and support with the unfamiliar technology, giving the fourth principle:

### **Principle 4:** *Provide support for technologies that are unfamiliar to the software suppliers.*

## 7.3.2 Use of mandate

As discussed in Section 3.1.1, one of the most effective manners of steering the adoption of SBR information chains is to mandate their use (Bharosa et al., 2018; Kreuzer, 2017). However, it was noted in literature that this method of steering the chain was most effective when the other stakeholders in the chain are aware of the technology and technologically ready (Kreuzer, 2017). Additionally, the representatives of the banks, that were interviewed, all indicated the importance of the customer journey and not wishing to make the process cumbersome for the clients. Here, the importance of the software supplier comes in as they determine for a

large part how easy or difficult it is for the other stakeholders to use the information chain. However to improve the implementation and use by intermediaries, it is seen to be effective to make the use of SBR obligatory once it is technically possible for the other parties to use it reasonably easily. The interviewed bank representatives all observed that the number of data sets that arrived through SBR after they made its use (partially) mandatory increased, leading to the following principle:

#### **Principle 5:**

#### Once technical readiness within the chain has been reached, mandate the use of the chain.

However, as mentioned in Section 7.2.2, the banks are hesitant to use their mandate when the other banks are not mandating the use of SBR. One of the banks therefore mandates the use of SBR only with clients that they already have a contractual agreement with or where the bank determines the commission such as with SBR Taxatierapport. Essentially, the use of the information chain is mandated in phases for different groups. SBR Huurinformatie is a clear example of this for one of the banks where the interviewee from the bank described how they start mandating the use of SBR once the software supplier of a group of clients has been connected with SBR. An additional benefit is that, even when mandated in phases, the numbers will increase making the process more interesting for other software suppliers to invest in, thus building towards the needed network externalities (Bharosa et al., 2018). Thus, giving the following principle:

#### **Principle 6:**

# Start mandating with client segments for whom there is an easy software solution or contractual agreement and build from there.

For the mandate to work there have to be consequences for non-compliance. Yet, the problem is that not all banks which mandate the use of SBR actually do this in practise. For example, one of the interviewed accountants said that when they send the financial report through SBR to the banks they often get the request to send the PDF version instead. This creates a point of irritation for the accountant and makes the accountant question why they should use the system if they will be asked to send the PDF version anyway. Additionally, there are some banks that state they will fine businesses if they do not send their data through SBR, however these fines are only functional if they are actually enforced, which is not necessarily the case according to the interviewees at SBR Nexus. Furthermore, in the SBR Jaarrekening case, due to the additional step between the bank and the intermediary, the fine may not be enough for the business to use SBR if the additional cost for using the SBR information chain exceed the fine. This leads to the following two principles:

#### Principle 7:

#### Implement and enforce sanctions that are proportional in terms of severity in the information chain.

#### **Principle 8:**

#### Do not ask or accept other forms of data delivery that are not through the information chain.

The request for the PDF version of the information was the most prevalent in the case of SBR Jaarrekening. The likely reason for this is that there are three possible data entry point for SBR Jaarrekenings (Section 4.1) and according to the interviewed representatives for the banks often the limited entry point is received, while in the majority of cases the extensive version is required by the banks. However, as mentioned above, not all banks specify in the letter they send which version they wish to receive. Thus, clear communication about the desired information should be combined with mandating the use of the SBR information chain, such that the reporting party can deliver the correct information. This gives the following principle:

#### **Principle 9:**

#### Communicate with the other stakeholders which information needs to be delivered.

## 7.3.3 Changes in individuals representing stakeholders

As discussed above and in literature (Winkler, 2006), individuals change over the course of the development of an information chain, which brings with it changes in the priority the development is afforded. Furthermore, it was noted by the SBR Nexus interviewees that the successor would not always have the same mandate in their own organisation, which can cause problems when decisions need to be made. Ostrom (1986) observed that one of the types of rules that emerge in networks are rules with regard to when and how stakeholders can enter or exit a specific position. These types of rules are not currently present in most of the information chains analysed here. Although in the SBR Huurinformatie case, there is a provision in the standardised contract for software suppliers that states that the contact person can only be changed if both parties (software supplier and SBR Nexus) agree. This gives the following principle:

### Principle 10: Define rules for changing individual representatives of stakeholder (groups).

However, simply having the rules with regard to changing individuals does not guarantee that these will be followed. One of the SBR Nexus interviewees suggested that it should be regularly checked if the right people are at the table. Both the FT and the VT have a yearly cycle where changes in regulations and feedback are implemented to form new taxonomies<sup>2</sup>. The start of a new development cycle would be a good opportunity to confirm that the right people are involved and they have the mandate to make decisions for their own organisation, giving the following principle:

# **Principle 11:** *At the start of a new cycle check if the right people are at the table.*

Loss of mandate was not the only problem noted by the interviewees that came with the changing of individuals. Another problem is the loss of knowledge, certainly if it is concentrated in one or a few people within an organisation. This is most noticeable for the knowledge of the technology behind the information chain, given that this is still fairly novel. One of the solutions proposed by an interviewed representative of the banks is to educate more people within the stakeholder organisations about SBR and the technology that are behind the information chain. This gives the following principles:

#### Principle 12:

Ensure that the involved individuals have knowledge about the process, use, and technology.

## Principle 13:

Diffuse knowledge of the information chain and its technology within the stakeholder organisations.

## 7.3.4 Ambiguously defined stakeholder roles

In the three cases analysed in this study, it was found that the stakeholder roles were not clearly defined resulting in the stakeholders viewing the division of roles differently or there was a difference between current role and expectation. This can cause frustration among the stakeholders, because they expect other stakeholders to take up certain roles as noted by several of the interviewees. As discussed in Section 3.3.3, stakeholder roles should be clearly defined to avoid conflict among the stakeholders (Sayogo et al., 2020; Gil-Garcia et al., 2019; Coughlan et al., 2003). Furthermore, it was noted by Gil-Garcia et al. (2019) that to effectively clarify and divide the roles they should also be clearly communicated to the different stakeholders. This leads to the following two principles:

 $<sup>^{2}</sup>$ The FT, as discussed in Section 3.1.3, is linked in its yearly cycle to the NT, while the VT is standalone and follows its own release schedule (SBR, n.d.-a). A new release of the VT is limited to a maximum of once a year according to the interviewees from SBR Nexus.

# **Principle 14:** *Define the different stakeholder roles and their boundaries.*

#### Principle 15: Communicate the roles to all stakeholders.

However, the development of the information chain goes through different phases, from the initial design to full implementation. Two of the interviewees from SBR Nexus remarked that, as the development progressed past the initial development phase into implementation and use, the structures, including division of roles, were lost. Thus, there should be a regular check to see if the stakeholders meet the expectation with regard to their roles and if those roles are still clearly defined, which gives the following principle:

#### **Principle 16:**

# Regularly check if the stakeholder roles are fulfilled according to expectation and if the roles are still relevant.

In case the stakeholders do not meet the agreed upon expectation with respect to their role there should be controls to ensure change, see Principle 7.

### 7.3.5 Lack of goal consensus

The third factor that was found to hinder the development of the information chain was the lack of goal consensus, which was the most problematic when it occurred among the banks given the position they have within the network. They are the stakeholder with the largest degree of influence on the rest of the chain. One of the interviewees in the SBR Huurinformatie case suggested that a more in-depth problem analysis should have been done to establish what each of the three banks saw as the problem that needed to be solved with the information chain. In the SBR Huurinformatie case, this was not done, which lead to the focus being on a part of the information chain that did not have the most potential in terms of adopters and efficiency gains giving the following principle:

#### **Principle 17:** Start the development with a problem analysis.

However, for this problem analysis or any of the following discussions to be sensible, there should be a shared understanding of definitions and internal processes. Multiple interviewees in the different cases pointed out that there should be more focus on what the current internal processes for the different stakeholders are that need to be incorporated in the information chain. Or, as Hulstijn et al. (2011) stated, SBR information chains are about the standards and agreements. Aside from getting an understanding of each other's processes to build goals upon, there should also be a common set of definitions. While part of this will be developed with the taxonomy, not all is covered. This is most notable in the SBR Jaarrekening case where the banks and accountants still have different definitions for the size of a business. The following two principles are needed to arrive at a common base to determine common goals upon:

### Principle 18:

#### Create a common understanding of the internal processes of the different stakeholders.

#### Principle 19: Create a common set of definitions.

Furthermore, it was noted by the interviewed stakeholders of SBR Nexus and the banks that there should be a focus on what the process outcome is. Which involves taking the goal as the process outcome that is desired

instead of focusing on the software solution. This includes deciding when a desired process outcome has been reached and a phase of development can be considered finished. Furthermore, once a goal has been established, ensure that all the main stakeholders, often the three banks, have the same understanding of this goal. This gives the following two principles:

#### **Principle 20:**

Focus on the process outcome of the development and decide in advance when that process outcome is reached.

**Principle 21:** 

Ensure that all main stakeholders have the same understanding of the common goal.

#### 7.3.6 Lack of governance structure

The last factor that was observed to hinder the development of B2B information chains is the lack of a governance structure. Ostrom (1990) looked at principles for a group of stakeholders that exist in an interdependent situation that have to govern themselves. These principles were developed for common pool resources, which Ostrom defined as, "a natural or man-made resource system that is sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use." (1990), p.30. The information chains under analysis here are comparable in the sense that they consist of a network of interdependent stakeholders that have to govern themselves. Furthermore, while it is certainly possible to exclude stakeholders from the information chain, this would go against creating a standard and establishing network externalities with said standard. Thus possibly being very detrimental to the overall progress of the information chains as the main standard in the private financial market. A couple of the principles developed by Ostrom (1990) are relevant to the development of B2B information chains in the financial sector, the two following principles are derived from those principles:

#### Principle 22: Clearly define what is managed and for whom it is managed.

and

## **Principle 23:** *Involve the main affected stakeholders in discussions and decisions.*

Principle 22 is based on the the first of Ostrom's principles, which is "clearly defined boundaries" (1990) p.90. In the case of an information chain, it should for example define what is part of the information chain that all stakeholders have some influence on and what is the individual stakeholder's responsibility. Furthermore, it should make clear what the rights are for the different stakeholders. An example for an information chain is who has the ownership of the data that is being send through the chain. The other principle is based on Ostrom's principle: "collective-choice arrangements" (1990) p.90. Which means that the stakeholders, that are affected by the operational rules that are part of the governance, should be able to participate in modifying the rules. In the cases described in this study, this was done in the form of work and expert groups, which also allow the stakeholders to give feedback on the process.

However, it is one thing to start with an agreement framework detailing the governance structure, it is another to keep this governance structure as the development progresses. As seen in the SBR Taxatierapport and SBR Huurinformatie cases, during the course of the development the carefully laid out agreements become more informal and less clearly defined. Kravets and Zimmermann (2012) stated that a governance structure should be flexible enough to allow for changes in stakeholder interests and development phase. Ideally, a governance structure should be developed such that it includes controls that ensure that the governance structure will developed along with the information chain. Thus giving the following principle:

### **Principle 24:**

### Adapt the governance structure according to the development phase that the information chain is in.

Yet, as mentioned above, a problem with the governance structure was that with time they would become less formal and with that less clearly defined for the different parties involved. Consequently, there is room for different interpretations of the rules and agreements within the network (Winkler, 2006). Furthermore, parties may unknowingly break agreements because they are not fully aware that those agreements exist (Winkler, 2006). Therefore, agreements should not only be formalised at the start, such as was the case with SBR Huurinformatie, but with changes new formalised agreements should be agreed upon such that it is clear for all parties involved what the rules are within the information chain, giving the following principle:

Principle 25: Keep agreements formalised with changes.

**Tab. 7.1.** Overview of the different principles for the development of a B2B information chain. The source of the recommendation indicates on which case or literature the principle is based. Here J = SBR Jaarrekening, T = SBR Taxatierapport, H = SBR Huurinformatie, and L = literature.

#	Principle	Explanation/Rational	Source recommendation		Literature source		
				Т	Н	L	
1	Involve one or a limited number of software suppliers in the initial development phase of the information chain.	Involving a software supplier can take away hurdles for the other stakeholders in the net- work.		~	~	~	(Bharosa et al., 2018)
2	Increase the number of software suppliers after the initial development phase.	Decrease the risk of a monopoly in the soft- ware market.		~	~		
3	Standardise the requirements that potential software suppliers need to meet.	When one software supplier is involved at the start, they are often taken as the bench- mark for other software suppliers who wish to join. However, this initial software sup- plier has a head start in development and thus there is the risk that a new software sup- plier needs to meet an ever increasing num- ber of requirements.		~	•		
4	Provide support for technologies that are un- familiar to the software suppliers.	The technology used within information chains can be unfamiliar for the software supplier, so helping them with information can take away hurdles for them.	~	~	~		
5	Once technical readiness within the chain has been reached, mandate the use of the chain.	Mandating the use of the information chain increases its implementation, however the stakeholders have to be technically ready for it to be effective.	~	~	~	~	(Kreuzer, 2017)
6	Start mandating with client segments for whom there is an easy software solution or contractual agreement and build from there.	Banks are hesitant to mandate the use of SBR because clients can go to one of the other banks. However, implementation of the information chain can be started with groups where the likelihood of them switch- ing is low.	~		~		
7	Implement and enforce sanctions that are proportional in terms of severity in the in- formation chain.	Making the use of an information chain mandatory will only be effective if there are consequences to not meeting the require- ments.	~				

**Tab. 7.1.** [Continuing] Overview of the different principles for the development of a B2B information chain. The source of the recommendation indicates on which case or literature the principle is based. Here J = SBR Jaarrekening, T = SBR Taxatierapport, H = SBR Huurinformatie, and L = literature.

#	Principle	Explanation/Rational	Source recommendation		Literature source		
			J	Т	H	L	
8	Do not ask or accept other forms of data de-	Asking or accepting other forms of data	✓				
	livery that are not through the information	negates the effect of the mandate, since it					
	chain.	takes away the incentive for other parties in					
		the chain to switch to the information chain.					
9	Communicate with the other stakeholders	One of the reasons that additional informa-	✓				
	which information needs to be delivered.	tion in the form of a PDF is asked often					
		has to do with incomplete data sets, due to					
		there being a misunderstanding about the en-					
		try point that is required.					
10	Define rules for changing individual repre-	When the individual representatives of a	✓	✓	✓	✓	(Winkler, 2006; Os-
	sentatives of stakeholder (groups).	stakeholder (group) change, it can change					trom, 1986)
		the priority that these people afford the					
		development. Furthermore, these replace-					
		ments do not always have the same level of					
		mandate in their own organisation.					
11	At the start of a new cycle check if the right	Having rules in place with regard to chang-	✓	✓	✓		
	people are at the table.	ing individuals alone will not necessarily					
		prevent the problems of changing individu-					
		als. There should be a regular check to see if					
		the right people are still at the table.					
12	Ensure that the involved individuals have	During the discussions with regards to the	✓		✓		
	knowledge about the process, use, and tech-	development of the information chains, it is					
	nology.	helpful if the individuals involved are aware,					
		not only of the technology, but also have an					
		understanding of how it is or is going to be					
		used in their organisation.					
13	Diffuse knowledge of the information chain	It was noted in the interviews that in quite a	✓	✓	✓		
	and its technology within the stakeholder or-	number of the organisations the knowledge					
	ganisations.	with regard to SBR information chains is					
		concentrated with a few individuals.					

**Tab. 7.1.** [Continuing] Overview of the different principles for the development of a B2B information chain. The source of the recommendation indicates on which case or literature the principle is based. Here J = SBR Jaarrekening, T = SBR Taxatierapport, H = SBR Huurinformatie, and L = literature.

#	Principle	Explanation/Rational	Source recommendation			Literature source	
			J	Т	Н	L	
14	Define the different stakeholder roles and their boundaries.	In all three cases, it was seen that there was no formal agreed upon division of roles for the most part, resulting in role expectations not being met or stakeholders having differ- ent interpretations.	~	~	~	~	(Sayogo et al., 2020; Gil-Garcia et al., 2019; Coughlan et al., 2003)
15	Communicate the roles to all stakeholders.	Having defined stakeholder roles is not enough if said stakeholders are unaware of their expected role, thus role expectations should be clearly communicated to all main stakeholders.				~	(Gil-Garcia et al., 2019)
16	Regularly check if the stakeholder roles are fulfilled according to expectation and if the roles are still relevant.	In addition to having communicated the roles, there should regularly be checks to see if the roles are being fulfilled according to expectation.	~	~	~		
17	Start the development with a problem analy- sis.	Since finding a detailed common goal and direction has been difficult, start with look- ing which problem, that the stakeholders have, should be addressed with the develop- ment of the information chain.			~		
18	Create a common understanding of the inter- nal processes of the different stakeholders.	An information chain is not only the techni- cal infrastructure that allows the transfer of data, but it should also connect to the dif- ferent systems of the different stakeholders. Therefore, it is important to know how the other stakeholders' processes work such that there is a common understanding.	~		~	~	(Hulstijn et al., 2011)
19	Create a common set of definitions.	Different stakeholders in the information chain have different definitions for similar terms, which does not improve common un- derstanding.	~	~	~		

**Tab. 7.1.** [Continuing] Overview of the different principles for the development of a B2B information chain. The source of the recommendation indicates on which case or literature the principle is based. Here J = SBR Jaarrekening, T = SBR Taxatierapport, H = SBR Huurinformatie, and L = literature.

#	Principle	Explanation/Rational	Source recommendation			Literature source	
			J	Т	Н	L	
20	Focus on the process outcome of the de- velopment and decide in advance when that process outcome is reached.	Information chains are not only the technical infrastructure that is being developed, they also contain standards and procedures. Ad- ditionally, it needs to be integrated in exist-	•	~	~	~	(Hulstijn et al., 2011)
21	Ensure that all main stakeholders have the same understanding of the common goal.	ing processes. When deciding on a goal, an additional check should be done that the stakeholders all have the same idea about the goal.	~	~	~		
22	Clearly define what is managed and for whom it is managed.	When building a governance structure, it should be clear to whom the structure ap- plies and what the boundaries are.	~	~	~	~	(Ostrom, 1990)
23	Involve the main affected stakeholders in discussions and decisions.	This allows all main stakeholders to give feedback and state whether a certain direc- tion of development is possible for them.	~	~	~	~	(Ostrom, 1990)
24	Adapt the governance structure according to the development phase that the information chain is in.	The development of an information chain goes through different phases and the gov- ernance structure set up at one point in the development may become dated e.g. when the development goes from initial design to implementation phase.		~	~	•	(Kravets & Zimmer- mann, 2012)
25	Keep agreements formalised with changes.	Having formalised agreements makes it clear to all parties what the rules and norms are within the chain. Lowering the risk of stakeholders unknowingly breaking rules.			~	~	(Winkler, 2006)

# **Chapter 8**

# Conclusion

The aim of this study was to find factors that improve the implementation of information chains during the development and create guiding principles for the B2B information chain development. While this study looked for factors that improved the implementation of the information chain, instead the majority of the factors found hindered the development of the information chain. The four factors found here are 1) changes of individuals, 2) ambiguously defined stakeholder roles, 3) lack of goal consensus, and 4) lack of clearly defined governance structure. The two factors that were found to improve the development and implementation of SBR information chains were mandating the use of SBR and early involvement of software suppliers. It can be concluded that the limiting factors in the development are on the organisational side, not the technical side, similar to B2G information chains.

One of the main factors that influenced the implementation of the information chain was changes in the individual representatives of the various stakeholder groups. All three cases that were analysed showed that the development was either pushed or hindered by changes in the attitude and sense of urgency as a result of switching of individuals, which was expected based on literature (Winkler, 2006; Provan & Kenis, 2008). This was especially noticeable when the changes occurred at the banks, given that they are the stakeholder with the largest amount of power to influence the rest of the chain.

Secondly, there are the ambiguously defined roles for the stakeholder groups. In none of the three cases the roles were formalised and clearly communicated to all the stakeholders. As a consequence, there was disagreement among the interviewed stakeholder groups what the roles were that specific stakeholders had to fulfil. Or, as seen in the SBR Jaarrekening case, the stakeholders agree on the expected roles, but the expectations are not met. Similar to what was observed by Coughlan et al. (2003) for intra-organisational projects was also observed here for the inter-organisational development of information chains, namely that an unclear roles division leads to disagreement about stakeholders' roles and resulted in role stretching.

Thirdly, there is a lack of goal consensus among the stakeholder group with the largest amount of influence (banks). It could be seen in the three cases that the absence of a clear goal beyond a paperless finance system hindered the development of the information chain. This common goal is required for the development of the requirements for the taxonomy and the overall infrastructure of the SBR solutions. However, due to the absence of a common goal, it is also difficult to make a comprehensive list of requirements that all the banks are satisfied with. Which is in line with the types of inoperability suggested by Scholl (2004). Resulting in development directions of the information chains that do not meet the individual banks' requirements or focus on parts of the chain development that only account for a small part of the overall development.

When the development of the information chain did not meet the requirements of the individual banks, this could lead to mixed messaging towards the other stakeholders in the chain. For example, the banks asking a PDF version of the reports in addition to the version received through SBR. Consequently, the other stakeholders within the chain were left wondering why they should implement the SBR solution when they still had to send the PDF version anyway. For the other stakeholders, it is important that the why question is answered, since they do not have an immediate business case. They will have costs while implementing.

Fourthly, the governance structure is lacking in all three cases. Aside from a limited number of formal contracts, most of which existed in some form before the development of the information chains, there is no formalised governance structure. The rest of the governance follows a network type governance with one stakeholder group that has a significant amount of power in the network (Provan & Kenis, 2008). However, this means that most governance is informal and few, if any, of the roles and rules are formalised let alone binding. Additionally, there is no control structure to ensure that common norms within the information chain are followed or that the individuals with their organisation's mandate participate in the decision-making on behalf of their stakeholder group.

Lastly, there are the two factors that improve the development of SBR information chains. First, there is mandating the use of the SBR solution to the rest of the chain by the most powerful stakeholders. However, the three banks are each other's competitors outside of the development of the SBR solutions resulting in the banks being reluctant to use their mandate. As a result, the use of SBR was mostly mandated in cases where the customer has a contract with said bank, e.g. when information needs to be sent for loan revisions, or when the banks are convinced that the SBR solution will not affect their customer's journey. In those cases, it can be seen that, as literature predicted, the adoption of the information chain increases (Bharosa et al., 2018).

The second factor that improved the implementation of SBR information chains was the early involvement of software suppliers, similar to what was seen in B2G information chains (Bharosa et al., 2018). However, this strategy comes with the risk for a monopoly in the software market as the involved software supplier will have a competitive advantage on other potential software suppliers as they have had the opportunity to influence the development process.

# 8.1 Practical implications

In addition to finding factors that influence the implementation of the information chain in a positive or negative manner, the aim was to develop guiding principles for B2B information chains development. These principles are the practical implications that follow from the three case studies and the literature review that were done as part of this study. Each of the factors was broken down to a number of principles that are intended to either minimise the negative factors or give building blocks to implement the positive factors. In total 25 principles were developed, an overview of which can be found in Table 7.1.

For the two factors, use of mandate and early involvement of software suppliers, part of the principles address in what phase of the development these factors should be used and how to negate any potential downsides of these factors, such as the risk of monopoly formation. The remaining principles for these factors focus on the communication and requirements surrounding the use of mandate or including software suppliers.

The next set of principles (10 - 16) focus on the stakeholders and specifically ambiguity of their roles and changing of individual representation. The main principles here are that clear rules should be defined with regard to these aspects of the stakeholder groups. Furthermore, it is advisable that there are regular checks to see if the people at the table are the correct people and if their roles are still relevant. Lastly, there are principles with regard to the knowledge transfer and communication within the information chain.

With regard to the lack of goal consensus, five principles (17 - 21) address the need to start on the same page before attempting to determine a goal and requirements. Therefore, the principles focus on the need for a problem analysis, a common understanding of internal processes and a common set of definitions. Secondly, a goal should be sought to address a process outcome where all stakeholders have the same view and agree on when this process outcome has been reached.

Lastly, there are four principles (22 - 25) that address the lack of governance structure. Here the main principle is to define what is managed and for whom it is managed (Principle 22). The other principles focus on the need to involve the different stakeholders within the chain and to keep the structure adapted to the changing phases and ideas.

As mentioned above, these 25 principles are developed based on the case studies and literature. They are recommendations for the continued development of the information chains under analysis and yet to be developed information chains. However, it should be noted that this study is a retrospective study. As a consequence, these principles have not been tested in practice. The principles are based on what interviewed stakeholders mentioned that could have been improved in relation to the factors. Furthermore, interviewees were asked what they would like to be done differently should the development be repeated, this was also taken into account for the principles. Thus, the efficacy of the individual principles would have to be further investigated.

## 8.2 Limitations and further research

There are at least four limitations that can be observed, which can serve as starting points for further research. First, all three cases discussed here are located within the Dutch financial system and have a focus on developing a SBR information chain. It would therefore be interesting to look at other information chains, that have a different focus in terms of the types of data that are being shared. Additionally, the cases here all have a defined hierarchy between the stakeholders in the chain, with the banks, in theory, having the mandate to force the other parties to use the chain. Further research can investigate the factors that hinder or improve the development and implementation for different types of data sharing chains. Examples of other possible information chains to be investigated are the sharing of agricultural data (Data Sharing Coalition, n.d.-b). This can allow either for the generalisation of the factors for different types of data sharing chains are likely to be affected by what type of factors.

Secondly, the factors that have been found in this study are unlikely to be independent of each other in their effect on the development of the information chain. As already discussed in Chapter 7, a more formal governance structure has been suggested by interviewees as a possible solution to changing individuals and replacements not having the correct mandate. A future study can look at the inter-dependencies between the factors and to what extend they influence the development. SBR Huurinformatie would be an interesting case to use for this study, since this chain is currently going through the process where agreements and its governance structure are being formalised. Yet at the same time, there seem to be no major changes in individuals or goals happening, although this will have the be checked.

A third limitation is that those interviewed for this study are all at least enthusiastic about the development of the SBR solutions. A significant number of those interviewed are involved in the meetings where the decisions on the development of the information chains are made. Therefore, a bias is present with the interviewees that have participated in this study. As a consequence, there is a potential blind spot for the potential difficulties and hurdles stakeholders that are not actively involved face. This is especially the case for the interviewed intermediaries. The perspective of those that are not as enthusiastic or have yet to implement the SBR solutions has not been taken into account. Their perspective may give a broader view on the factors that hinder the development and implementation for this group of stakeholders. However, it is unlikely that there are stakeholders that are affected by the process that will be entirely unbiased one way or another.

Another limitation is that this research was carried out from a central position within the chain and as such did not look in-depth at the inner-workings of the different stakeholders. As a result, this study looked at the factors that hindered or improved the overall development of the SBR solutions. However, it would be interesting to analyse on the individual stakeholder level to see how the above described factors impact the specific stakeholder groups. Or, if there are blocking issues, at the internal implementation side for any of the stakeholder groups. For example, the implementation of the three banks could be taken as one of the cases to see how the organisational structure influences their implementation and stance in the overall development.

Another recommendation for further research would be to investigate the effect of the use of the banks' mandate. The representatives from the banks stated that they were hesitant to use their mandate, because of the potential for customers to go to one of the other banks that yet had to mandate the use of SBR. It would be useful for the development of the information chain to investigate if this is indeed the case or that banks have more room to use their mandate without losing customers, since obligating customers to use SBR has been shown to be an effective manner of steering adoption (Bharosa et al., 2018).

# 8.3 Relevance to the MoT program

The Management of Technology (MoT) program aims to combine the technology-orientated perspective of engineering with social and economical aspects of technological innovation to see innovations as a corporate resource (TU Delft, n.d.). This study fits within MoT as it followed the technological development and implementation of a SBR information chain. As mentioned before, this study showed that only taking the technological aspects into account while developing an information chain is not enough, these technological developments are part of a chain of processes that they have to be integrated into. Thus showing the need to bridge the gap between the social and technological aspects.

Different parts of the various MoT courses were applied. Most relevant was the course Digital Business Process Management, which gave the tools to analyse the relationship between the business process, strategy, and technology. This was the starting point for analysing the three different cases, where the development over time was analysed to gain an understanding for potential improvements. Additionally, Inter- and Intra-Organisational Decision Making was used as a starting point for theories with regard to networks and behaviour within those networks. Lastly, there is the course Technology Dynamics which showed that innovations are a consequence of human choices, which is an aspect that came up in the cases analysed. This study combines the theories of the courses mentioned above. It showed the need to take the social and organisational aspects into account when implementing a new technology with the aim of process redesign. Furthermore, this study combined different strands of governance literature, namely data, platform and network governance. Additionally, this study gives an insight into the literature with respect to the division of roles in inter-organisational networks and information chains.

# 8.4 Personal reflection

This thesis was an interesting experience. While I have done research as part of my chemical engineering background, the in-depth case studies were a relatively new type of research method for me. Therefore, this thesis challenged me to broaden my skills with respect to document analysis and interview techniques. The theory behind these methods have of course been addressed in courses during the MoT master, however these are skills that you learn by doing. Certainly, interviewing was in my opinion a difficult skill to learn.

In total I interviewed 15 people, as some of the people at SBR Nexus are involved in more than one of the cases and thus were interviewed about more than one of the cases. It varied how well building a rapport went with the interviewee. In some cases, the interviewee went into detail when answering the questions, while other interviewees gave short and to the point answers. As such some of the interviews gave more information, which was helpful as the answers also gave new angles with which to look at the cases. However, as a result some interviews also took significantly more time to transcribe.

Lastly, this thesis brought home the importance of the social and organisational aspect of process innovation. This thesis showed me the importance of taking the human element into account when trying to implement a technological innovation. In the analysed cases, the technology was not the limiting factor, it was the organisational side.

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# Appendix A

# **Overview cases**

	Case study 1	Case study 2	Case study 3		
	SBR Jaarrekening SBR Taxatie		SBR Huurlijsten		
Initiation project	2010	2016	2019		
Main stakeholder groups	Banks, SBR Nexus, Software supplier, Accountant, Businesses	Banks, SBR Nexus, Software supplier, Valuer	Banks, SBR Nexus, Software supplier, Property owner		
Stakeholder groups involved in development	Banks, SBR Nexus, Software supplier, Accountant	Banks, SBR Nexus,Valuer	Banks, SBR Nexus		
State of implementa- tion	Major software suppliers connected	Major national software suppliers connected	Software solution for those without PMS, process of connecting PMS ongoing		
Formalisation	Limited to statutes SBR Nexus and formal relationships that existed before the SBR solution	Limited to statutes SBR Nexus and formal relationships that existed before the SBR solution	Cooperation contracts between SBR Nexus and software suppliers, and statutes SBR Nexus		
Governance structure	Informal	Initially formalised in work and expert groups, now informal	Initially project proposal, now informal		

Tab. A.1. Overview of the differences between the case studies.

# **Appendix B**

# **Overview interview questions**

As discussed in Section 2.5 the interviews had the form of semi-structured interviews. The following questions formed the basis for the different interviews. All the interview question below are translated from Dutch.

## **B.1 SBR Jaarrekening**

#### **Context before transition to FT**

- Before SBR Nexus, which stakeholders were involved in the process of the development of SBR Jaarrekening?
- For the different stakeholders, what were their roles within the process?
- Did the roles they had match the expectation for the stakeholder roles?
- What was the reason to go from SBR Banken to SBR Nexus?
- How did you see your role in the transition?
- Did the roles stakeholders had change due to the transition?
- With the knowledge you have now, are there things you would change about the process?

#### **Context transition BT to FT**

- Was there a specific reason to review the BT and change to FT?
- With regard to the roles, what was the role of the banks?
- Was there a difference between the three banks?
- What was the role of accountants and software suppliers in the transition from BT to FT?
- The client, the business owner, were they involved in this process?
- Did the involvement of the stakeholders change with the transition from BT to FT?
- Were there changes in the roles of the stakeholders?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

#### Accountant

- What was the reason for you to implement SBR Jaarrekening?
- How did the implementation go for your firm?
- What is your opinion on how accountants have been involved in the development process?
- How do you see the division of roles among the stakeholder?
  - SBR Nexus
  - Banks
  - Software suppliers

- Business
- What were your expectations for the different stakeholders in terms of roles?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

## Software supplier

- What was the reason for you to implement SBR Jaarrekening?
- How did the implementation go for your firm?
- What is your opinion on how software suppliers have been involved in the development process?
- How do you see the division of roles among the stakeholder?
  - SBR Nexus
  - Banks
  - Accountant
  - Business
- What were your expectations for the different stakeholders in terms of roles?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

### Bank (account manager)

- How did the implementation of SBR Jaarrekening go?
- What is your opinion on how account managers were involved in the development?
- Who determines the direction of the development?
- What role should the banks have?
- What is the role SBR Nexus should have according to you?
- What is the role accountants should have according to you?
- What is the role software supplier should have according to you?
- What is the role businesses should have according to you?
- Did the roles differ from your expectations?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

## Bank (SBR process side)

- What was the reason for you to start the development of SBR Jaarrekening?
- What is your opinion about the transition from BT to FT?
- How did the implementation of SBR Jaarrekening go?
- How do you see the role of the banks within the development of SBR Jaarrekening?
- What is the role SBR Nexus should have according to you?
- What is the role accountants should have according to you?
- What is the role software supplier should have according to you?
- What is the role business should have according to you?
- Did the roles differ from your expectations?
- With the knowledge you have now are there things would change about the process?
- Any other remarks?

## SBR Nexus and transition BT to FT

- What was the reason to go from SBR Banken to SBR Nexus?
- And from BT to FT?
- Which stakeholders have been involved and has there been any change?
- What is the role SBR Nexus should have according to you?
- What is the role banks should have according to you?

- What is the role accountants should have according to you?
- What is the role software supplier should have according to you?
- Did the roles differ from your expectations?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

# **B.2 SBR Taxatierapport**

#### Context start development SBR Taxatierapport before establishment SBR Nexus

- How did SBR Taxatierapport start?
- At the start, there was a proposal for a governance structure, how did this work in practice?
- What was the role for the banks?
- What was the role for the valuers?
- What was the role for the software supplier?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

#### Valuer

- What was the reason for you to implement SBR Taxatierapport?
- How did the implementation go for your firm?
- What is your opinion on how valuers have been involved in the development process?
- How do you see the division of roles among the stakeholder?
  - SBR Nexus
  - Banks
  - Property owner
  - Software supplier
- What were your expectations for the different stakeholders in terms of roles?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

#### Software supplier

- What was the reason for you to implement SBR Taxatierapport?
- How did the implementation go for your firm?
- What is your opinion on how software suppliers have been involved in the development process?
- How do you see the division of roles among the stakeholder?
  - SBR Nexus
  - Banks
  - Software suppliers
  - Valuers
- What were your expectations for the different stakeholders in terms of roles?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

## Bank

- What was the reason to start with the development of SBR Taxatierapport?
- How did the implementation go?

- What was the role for SBR Nexus?
- What was the role for the banks?
- What was the role for the valuers?
- What was the role for the software supplier?
- What were your expectations for the different stakeholders in terms of roles?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

#### SBR Nexus

- What is the current governance structure?
- What was the role for SBR Nexus?
- What was the role for the banks?
- What was the role for the valuers?
- What was the role for the software supplier?
- What were your expectations for the different stakeholders in terms of roles?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

# **B.3** SBR Huurinformatie

### Start development SBR Huurinformatie

- How did the project SBR Huurinformatie start?
- How do you see the division of roles among the stakeholder?
  - SBR Nexus
  - Banks
  - Property owner
  - Software supplier
- What were your expectations for the different stakeholders in terms of roles?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

#### Bank

- What was the reason to start with the development of SBR Huurinformatie?
- How did the implementation go?
- What was the role for SBR Nexus?
- What was the role for the banks?
- What was the role for the valuers?
- What was the role for the software supplier?
- What were your expectations for the different stakeholders in terms of roles?
- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?

### SBR Nexus

- What was the role for SBR Nexus?
- What was the role for the banks?
- What was the role for the valuers?
- What was the role for the software supplier?
- What were your expectations for the different stakeholders in terms of roles?

- With the knowledge you have now, are there things you would change about the process?
- Any other remarks?